

**Not Immune:
Politics, Bureaucracy, and the Limits of Professional Autonomy**

by

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Completing a dissertation is the academic equivalent of running a marathon. After years of training, some “time trials” in the form of preliminary exams and the prospectus defense, and the selection of experienced faculty to provide “coaching,” you begin a grueling undertaking.

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LIST OF ABBREVIATIONS

| | |
|--------|--|
| ACIP | Advisory Committee on Immunization Practices |
| ASTHO | Association of State and Territorial Health Officials |
| CDC | Centers for Disease Control and Prevention |
| FDA | Food and Drug Administration |
| HPV | Human papillomavirus |
| IPUMS | Integrated Public Use Microdata Series |
| JCAR | Joint Committee on Administrative Rules |
| LHD | Local Health Department |
| MCIR | Michigan Care Improvement Registry |
| MDHHS | Michigan Department of Health and Human Services |
| MMR | Measles-Mumps-Rubella |
| MVC | Michigan for Vaccine Choice |
| NACCHO | National Association of County and City Health Officials |
| NCSL | National Conference of State Legislatures |
| NVIC | National Vaccine Information Center |
| VIS | Vaccine Information Statement |

ABSTRACT

State public health agencies play a crucial role in disease prevention and health promotion by implementing policies that advance population health. This dissertation examines how institutional, organizational, and political factors affect the implementation decisions of health professionals who work within these agencies. In particular, I focus on the effects of bureaucratic professionalism, which I define as the extent of self-regulating, networked experts in a policy-relevant field within a government agency. I elucidate how bureaucratic professionalism influences agency health policy implementation decisions within certain institutional and political contexts.

I begin by developing a theory of bureaucratic professionalism, which I refine through interviews with state government employees and professional association representatives. I then examine why we see variation in bureaucratic professionalism across state health departments and over time. I hypothesize that bureaucratic professionalism will increase when the legislature is more professionalized and of the opposite party. While some of my empirical results support this hypothesis, they are inconsistent across different measures of professionalism and are sensitive to model specification. Next, I elucidate how and under what conditions variation in bureaucratic professionalism affects state public health policy by focusing on childhood immunization rulemaking. The particular conditions of interest include: the existence of a board of health, the level of bureaucratic professionalism, and the presence of divided government. I find that states with a greater proportion of bureaucrat-professionals in state government propose

fewer immunization rules under divided government. This is surprising, as the literature on science-driven, federal-level bureaucracy suggests that bureaucrats enjoy a certain amount of autonomy based on the professional reputation of their field.

Finally, I shift my focus from rulemaking to program implementation to ascertain the effects of professionalism on this aspect of policy implementation. I conduct a case study of a recent childhood immunization rule in Michigan to understand how bureaucrat-professionals at the local level implement a state rule. Local-level professionals appear to use their discretion to accommodate parents' decisions not to vaccinate their children, which at first appears to be at odds with what the effects of professionalism might suggest. However, the rule also represents a shift in the types of professionals responsible for implementing the policy, replacing school secretaries with health professionals who are committed to providing education about vaccination and may be held accountable for vaccination rates. The main effect of this policy is that it makes obtaining a vaccination as convenient as obtaining a nonmedical exemption, as both require an appointment with a health professional. Additionally, my analysis of the implementation of this rule reveals an overlooked aspect of bureaucratic professionalism: professionals within local health departments are absorbing and managing conflict between the public and public health through the departments' approach to the education sessions.

This dissertation helps us better understand the role of bureaucrat-professionals in state government, and the conditions under which they employ their expertise to implement health policy. Concern for reputation and the potential for reduced policy implementation authority lessens professionals' desire to make rules in challenging political environments. And, in implementing a rule that helps parents avoid vaccines, professionals appear to be utilizing their long-term mindset and commitment to education to overcome the short-term focus of vaccinating

all children. The long-term goals of the profession lead health professionals within bureaucracies to adopt a strategic mindset toward agency policy implementation.

CHAPTER 1

Introduction

What influences agency policy implementation behavior? In this dissertation, I examine two aspects of policy implementation: when agencies engage in rulemaking and how they carry out program implementation. Yet, many prior studies do not consider the effects of the differing professional backgrounds of the bureaucrats that work within these agencies. This study pays special attention to the role that health professionals play in policy implementation, and how their professional background contributes to their agency's strategic responses to political challenges.

The study of implementation behavior is important from a political science standpoint because a policy's implementation has the potential to create new politics. If they are politically powerful, those advantaged by policy implementation will defend the benefits, while those disadvantaged by it will seek to undermine or ultimately undo the policy. And, this behavior is important from a public health standpoint because the bureaucracy designs the regulations, standards, programs, incentives, and sanctions so that policies on paper can be put into action. The implementation of public health policies affects the likelihood of an infectious disease outbreak, exposure to second-hand smoke, the walkability of our towns and cities, and the prevention of head injuries, to name a few. In sum, by knowing what influences bureaucratic behavior, we can, to some extent, predict how the implementation of these policies will proceed.

The particular focus of this dissertation is state-level childhood vaccination policy. Childhood vaccinations are approved at the federal level by the Food and Drug Administration (FDA). The Advisory Committee on Immunization Practices (ACIP), which is housed within the Centers for Disease Control and Prevention (CDC), decides whether to recommend the vaccination. States then choose which vaccines to mandate based on this recommendation. For example, a state can decide to mandate a second dose of varicella (chickenpox) vaccine as a requirement for kindergarten entry. In addition to which vaccines to mandate, states also make decisions about vaccine exemptions: should a parent be able to opt out of vaccines for medical, religious, or philosophical reasons? And, states can decide whether to provide information about particular vaccines or the diseases they are designed to prevent.

My dissertation contributes to our understanding of bureaucratic behavior at the state and local level, elevating professionalism as an explanation rather than a control. That is, I consider the effects of professionals and professionalism in explaining why agencies adopt particular strategies rather than treating professionalism as an unchanging characteristic that does not play a causal role in agency behavior. My work complicates the notion that divided government has an unconditional effect on bureaucratic behavior by distinguishing between bureaucracies that house more or fewer health professionals. It also dispels the notion that local-level bureaucrat-professionals wield their discretion to the detriment of their clients and in response to immediate professional pressures. Instead, discretion is more often than not used to meet clients' program needs, although this may depend on whether such clients are seen as advantaged. Additionally, discretion is used in a manner that focuses on policy results even if the means run counter to the professionals' beliefs and training. Finally, it contributes to our understanding of how childhood vaccine policy is implemented at the state level.

This chapter proceeds as follows. First, I outline the bureaucracy’s policy implementation role and potential limitations to this role. Second, I provide an overview of the aspects of public health that make it inherently political. I also describe the specific context—childhood immunization policy—to orient the reader to the types of policies this arena encompasses at the state level. Third, I present the central argument of this thesis. Last, I offer an overview of the dissertation and a plan for how I will address my argument.

I. Bureaucrats’ Policy Implementation Role

Policy implementation consists of those steps that connect a policy’s goals with objectives and, ideally, a desired outcome.¹ As mentioned above, this implementation can take different forms, such as regulatory, educational, or financial measures. Regulatory measures can take the form of rulemaking, which is undertaken by agencies in order to “implement, interpret, or prescribe law or policy.”² While I categorize rulemaking as part of the policy implementation process, it is important to note that rulemaking is also technically policymaking: finalized rules carry the full legal weight of law. However, rules cannot be made without statutory authority, most likely through the passage of a bill that was signed into law. For example, in order for a state department or board to write medical marijuana rules, it must first be given the authority to regulate. It cannot simply expand its regulatory scope to include marijuana without this authority.

Following statutory authority, rulemaking—and implementation more generally—can occur. As an example of implementation, rulemaking proceeds in a straightforward fashion. At the federal level, the U.S. Congress passed the Administrative Procedure Act (or APA) in 1946

¹ This definition borrows from the discussion of implementation in Pressman and Wildavsky, 1984, p. xxi-xxiii.

² 5 United States Code 551 (4)

to “bring regularity and predictability to the decision-making process of government agencies” (Kerwin, 2003, p. 2). All 50 U.S. states have their own APAs that formalize the rulemaking process and detail the steps to which bureaucrats must adhere in order to propose and finalize rules. The steps that state-level bureaucrats follow in the rulemaking process may include preparing a cost/benefit analysis, holding a public hearing and collecting comments, sending the rule to relevant agencies in order to review for form and legality, and submitting the rule for review by a legislative committee.³ The key question in this instance is: *will* implementation proceed?

Other implementation tools, such as program delivery, are less prescribed and involve direct client interaction. Programs are planned based on organizational aspects such as funding, staffing, and clientele that have the potential to strengthen (or weaken) the program. To the extent that they are permitted to by law, program staff make a host of choices about program eligibility, operation, and approach. Staff also make decisions about program evaluation and whether to update the program based on these efforts. In this instance, the key question is: *how* will implementation proceed?

Bureaucrats’ implementation decisions depend on the political context, in that bureaucratic behavior can be influenced by elected officials, which are referred to as political principals. To what extent do bureaucrats implement with their political principals in mind? Or rather, when do bureaucrats act autonomously and pursue their preferred policies? These principals possess various tools that they can use to directly or indirectly control bureaucratic behavior, such as appointment, oversight, and budgetary powers. Yet, all political principals are not equally likely to wield these tools to bend the will of bureaucrats. Depending on the

³ Indeed, state-level adoption of APAs was also affected by political conditions (de Figueiredo and Vanden Bergh, 2004). However, all states had APAs in place by 1984, so this is not a factor in this present study.

preferences of the legislature and the governor, bureaucrats may be able to implement a policy according to their own preferences. As I will discuss later, divided government—which I define as those instances in which the legislature is of one party and the governor is of another—may present a particular policy implementation challenge depending on the types of bureaucrats housed within the agency.

Bureaucrats' implementation decisions may also depend on organizational factors internal to the bureaucracy. In particular, the types of bureaucrats that work within the agency may affect the agency's willingness or ability to implement the policy. At the organizational level, professionalism is a distinguishing characteristic that has the potential to affect bureaucratic behavior. Professionalism refers to the extent to which a bureaucrat belongs to a profession, where the individual experiences the benefits of expertise, along with information and support networks. Additionally, the individual is also subject to constraints of the profession, as a profession is only as good as its members. Thus, professions may formally or informally regulate members' behavior to ensure that the reputation of the profession remains intact.

Finally, bureaucrats' implementation decisions may depend on the institutional ability of a central entity to direct or potentially limit policy implementation. At the state level, some states have in place a board of health that has the power to decide whether the agency can engage in rulemaking. Most boards include public health professionals that can potentially use their expertise to provide guidance as to the content of rules. The boards also include members of the public, such as private citizens and consumer advocates, who may be able to provide information about public support or opposition to rules. At the local level, state agencies have the potential to fill this centralizing role depending on the nature of the policy or program. Similar to a state board of health, the state health agency can provide guidance on the content of the program or

provide training and support materials. Additionally, the state can provide a perspective on potential political threats based on constituent complaints, legislative actions, and legal complaints. Further, the state can sanction local departments that do not follow its guidance through budget cuts, the removal of accreditation, or other measures.

Together, the bureaucrat's political, organizational, and institutional context help explain implementation behavior.⁴ However, while the political context has been well-studied (e.g., Yackee and Yackee, 2009; Potter and Shipan, 2012), its interaction with other features has not. Do certain bureaucrats react to the same political environment differently, and what role does a centralizing institution play under these conditions? What effect do these political, organizational, and institutional dynamics have on bureaucratic behavior?

II. Public Health and Childhood Vaccine Policy

What is public, and what is political, about public health? "Public" refers to the fact that the government is responsible for taking action; it also refers to who expects to benefit from this action (Gostin, 2008). According to Thomas Frieden, a former director of the CDC, governments act to "increase the information available to the public and decision makers, protect people from harm, promote health, and create environments that support healthy behaviors" (2013). Yet, Frieden also notes that some may see the government's public health actions as "intrusive." Thus, the fact that there is a political aspect to public health is unsurprising. Political conflict arises because it serves someone's interest to make a private conflict public (Schattscheider, 1960). In this instance, individuals may feel that the "nanny state" is interfering with their rights to take certain private actions. In the context of childhood vaccine policy, we might imagine a

⁴ It is also possible that intrinsic factors affect bureaucrats' behavior, in that they value a job well done. As I discuss later, my focus on professionalism captures these intrinsic motivations to some extent.

parent opposed to vaccination pushing a conflict that was thought to end at the school's door into the public light.

Childhood vaccine policymaking and policy implementation largely rest within the boundaries of individual states. Following approval and recommendation at the federal level, states make key policy choices such as whether to require parents to receive vaccine- or disease-related information, mandate certain vaccines, and permit parents to exempt their child from vaccines. Policies governing childhood immunization mandates and exemptions have a major impact on the health of the population: noteworthy declines in vaccine-preventable disease incidence followed the adoption of school entry mandates (CDC, 1999; Hinman *et al.*, 2011). Conversely, nonmedical exemption laws, in which individuals can “opt out” of vaccination for reasons of religious or personal belief, are associated with an increase in vaccine-preventable diseases (Salmon *et al.*, 1999).

The most recent iteration of political controversy surrounding vaccines occurred following a series of events that called vaccine safety into question. To give a brief history of the past twenty years of controversies, research claiming an erroneous vaccine-autism link was published in 1998, only to be retracted in 2010. In 1999, concerns about methyl mercury led to what are now recognized as misplaced concerns about thimerosal, a vaccine preservative, because it is an ethyl mercury derivative. And, in the mid-2000s, a new battle emerged as state lawmakers considered whether to mandate that school children be immunized against Human Papilloma Virus, or HPV, which is a sexually-transmitted disease (Lillvis, Kirkland, and Frick, 2014). In some ways, it now appears that we have come full circle, as states report outbreaks of the infectious diseases vaccines were mandated to prevent, such as pertussis, measles, and mumps (Adams *et al.*, 2016). In 2015, Vermont and California eliminated exemptions based on

philosophical exemptions. On the other hand, media reports suggest that President Trump's words about vaccines and interest in vaccine safety have once again galvanized the vaccine-critical movement.⁵

While the vaccine-critical movement may use language usually associated with oppression, its members are not oppressed in the traditional sense.⁶ Most parents who do not vaccinate their children are white and college-educated with household incomes of over \$75,000 a year (Reich, 2016). As Kirkland notes, these movements are similar to other middle-class movements surrounding health issues such as breast cancer and AIDS (2012). Furthermore, wealthier, educated individuals are more likely to participate and be mobilized by interest groups (e.g., Rosenstone and Hansen, 1993). Thus, policy gains are skewed towards benefiting the most advantaged within an affected population (Schneider and Ingram, 1993; Strolovitch, 2006). And, there is some evidence that such groups are successful in achieving their goals: Best (2012) finds that more organized patient populations, as well as those targeting diseases of socially favored groups, are able to garner greater federal research funds for their diseases.

On the other hand, we should also recognize that some children remain unvaccinated, not as a result of personal or religious belief, but due to difficulties accessing needed vaccines. A study based on 2013 National Immunization Survey data showed that significantly fewer infants and toddlers living below the poverty line receive their required vaccines in comparison to those living above (Elam-Evans *et al.*, 2014a).⁷ While much attention is given to the wealthy face of

⁵ Sun, Lena H. (2017). "Trump Energizes the Vaccine Movement in Texas." *The Washington Post*. https://www.washingtonpost.com/national/health-science/trump-energizes-the-anti-vaccine-movement-in-texas/2017/02/20/795bd3ae-ef08-11e6-b4ff-ac2cf509efe5_story.html?utm_term=.18af0079837d (Accessed 2/24/17)

⁶ For example, parents of unvaccinated children may claim that they feel bullied or that they have fears about revealing that they do not vaccinate their children (see for example, Reich, 2016).

⁷ However, another study focusing on teens found no difference in vaccination status by poverty level. The one difference was HPV vaccine, where teens living in poverty were more likely to have started or completed their series than teens living above (Elam-Evans, 2014b).

un- and under-vaccination, we should be mindful that a lack of access may also decrease vaccination rates.

It is important to stress that the vast majority of Americans vaccinate their children. Data from the 2014-2015 school year from the CDC show that the median kindergarten coverage for the following vaccines was over 90%: MMR (measles-mumps-rubella) coverage was at 94%, while diphtheria, tetanus, and acellular pertussis vaccine (DTaP) was at 94.2%, and the 2-dose varicella (chicken pox) vaccine was at 93.6% for states with those requirements (Seither *et al.*, 2015). Meanwhile, the national exemption rate was less than 2% (Seither *et al.*, 2015).⁸ Yet, the report also notes state and local geographic variation in coverage and exemption rates. For example, Mississippi reports that over 99% of the state's kindergartners received the above vaccinations and no philosophic or religious exemptions were given. On the other hand, Michigan has a statewide kindergarten vaccination rate of above 93% for the above vaccines. And, we can dissect this further still: Michigan's Schoolcraft County was among those that reported a nonmedical waiver rate of less than 1%, while Gladwin County reported a nonmedical waiver rate of 16% in 2014.⁹ Local-level clustering of exempt children is a particular problem, as the risk of outbreaks and incidence of vaccine-preventable disease is higher in these communities (see Wang *et al.*, 2014 for a review).

Some states have not achieved the national goal of having 95% or more kindergartners vaccinated, which is concerning because low vaccination rates and high exemption rates also

⁸ The CDC report notes that: “[d]ata from Hawaii, Houston, New York City, Guam, the Commonwealth of the Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands were not included in the coverage medians.”

⁹ Nonmedical waivers are given for religious or philosophical reasons. Michigan Care Improvement Registry (MCIR) data was provided by the Michigan Department of Health & Human Services (MDHHS) Division of Immunization. These numbers reflect the overall percentage of students with nonmedical waivers in 2014.

have potential disease consequences.¹⁰ This 95% benchmark was set because it is believed to be the point at which herd immunity occurs (DeFranco, Locksley, and Robertson, 2007). In other words, at this level of immunity, disease is not able to spread in a community. In contrast, areas with greater exemption rates are at risk of an infectious disease outbreak. To provide one example, in 2014, a highly-publicized measles outbreak occurred in the Disneyland Theme park in Anaheim, California. At the time of the outbreak, California had one of the most permissive exemption policies in the country. Research has since indicated that high rates of vaccine exemptions helped spark the outbreak (Majumder *et al.*, 2015).

The California state legislature passed a bill, SB 277, eliminating the philosophical exemption to vaccination in the months following the outbreak. In his signing statement, Gov. Jerry Brown noted that the bill “occasioned widespread interest and controversy” and that “the evidence shows that immunization powerfully benefits and protects the community.”¹¹ While SB 277 amended the Health and Safety code, other codes needed to be brought into compliance with this law via the rulemaking process. To illustrate, consider how this law is monitored and enforced at the school level. K-12 schools in California are audited to ensure their compliance with existing law, which includes an audit of pupil immunization status. Following the passage of SB 277, a rule was proposed and finalized that amends the state audit guide “to refer to current medical exemptions and personal beliefs exemptions filed before January 1, 2016, from measles testing; and to delete the personal beliefs exemption as to the Tdap vaccination, in

¹⁰ Office of Disease Prevention and Health Promotion. “Immunization and Infectious Diseases.” <https://www.healthypeople.gov/2020/topics-objectives/topic/immunization-and-infectious-diseases/objectives>. (Accessed 06/07/16)

¹¹ Gov. Brown’s signing statement is available at: https://www.gov.ca.gov/docs/SB_277_Signing_Message.pdf (Accessed 2/27/17)

accordance with SB 277.”¹² The promulgation of this rule helps implement SB 277 by ensuring that auditors are using the updated immunization law upon which to measure school compliance.

III. Central Argument

While some regulations are proposed and adopted in the years immediately following legislative action, others are less connected to legislation.¹³ For example, a 1998 law in Oklahoma gave its health agency authority to alter the list of mandatory vaccinations, but included a clause about legislative review of such changes:

“The State Board of Health, by rule, may alter the list of immunizations required under this section after notice and hearing. Any change in the list of immunizations required shall be submitted to the next regular session of the Legislature and such change shall remain in force and effect unless and until a concurrent resolution of disapproval is passed.” (1998 OK SB 1400)

Rather than a rote activity, rulemaking in this instance is a strategic choice. When faced with such a choice, what factors affect implementation behavior such as rulemaking?

In this thesis, I argue that the interaction between political, organizational, and institutional factors influences state-level agency implementation behavior. In particular, I focus on the conditions under which bureaucrats can act autonomously, and when they cannot. By addressing this from the state level, I am able to examine the dynamics between various political, organization, and institutional characteristics within and across states. Importantly, some states, such as California and Michigan, have experienced a rise in infectious disease. Thus, I can also

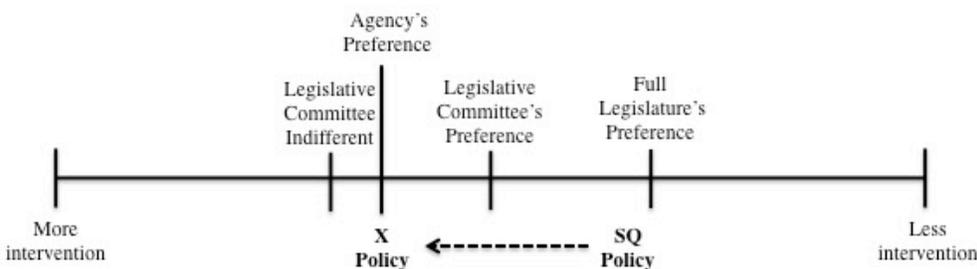
¹² Text obtained from LexisNexis concerning Title 5 CCR Section 19810, Education Audit Appeals Panel, Title 5, Division 1.5, Chapter 3. Audits of California K - 12 Local Education Agencies, Article 2 Audit Reports (LN # 23828).

¹³ Note that I control for legislative activity in my analyses where pertinent.

include potential need for regulation in my analyses. Below, I describe the specific political, organizational, and institutional factors of interest.

In the study of bureaucratic behavior, the political science literature has, to some extent, moved away from the bifurcation between bureaucratic autonomy and political control, and instead focuses on the conditions under which bureaucrats can act autonomously. That is, agencies pay more attention to the preferences of political principals (e.g., relevant legislative committees) under certain circumstances (e.g., Shipan, 2004). One way of theorizing about these conditions is by thinking about a policy in one-dimensional space. We can envision potential alternatives to a policy as a straight line running from left to right, where the more liberal iterations are to the left and conservative to the right. For simplicity, let us also consider only one aspect of the policy: the level of government intervention, where those on the left are more in favor of intervention and those on the right are less so. Now, we can add our political actors and their preferences: the agency favors a policy of more intervention, whereas the relevant legislative committee and the entire legislature favor a policy of less intervention.¹⁴ Figure 1-1 provides an illustration of this scenario, where “SQ” represents the location of the original policy, and “X” represents the location of the new policy.¹⁵

Figure 1-1. Shifting Policy Based on Agency Preference



¹⁴ For ease of explanation, I am only considering a unicameral (e.g., a situation in which the legislature is comprised of only a Senate) legislature, as opposed to a bicameral legislature.

¹⁵ Shipan refers to this arrangement of policy preferences as a “gatekeeping regime.” Here, I assume that the legislature has granted the authority to the agency to regulate.

In the scenario depicted in Figure 1-1, the agency is able to implement its preferred policy because of the preference locations of the various political actors. The agency (and presumably, the governor) prefers more government intervention than the current policy, SQ. Therefore, the agency promulgates a rule that allows for increased government intervention. The full legislature is more conservative, preferring SQ. However, the relevant oversight committee is more liberal than the full legislature.¹⁶ Additionally, the committee is indifferent to a certain amount of policy change: the agency can promulgate a rule that is a bit to the left or to the right of the committee's preference and the committee will still let the rule stand. Thus, as the agency's preferred policy is not too far from the committee's preference, it can propose its preferred policy, X.

Divided government is a condition of interest because it may produce the scenario depicted above. I define divided government as when a governor is of one party and a legislature is of another. Thus, it would be unsurprising that the agency, which is located within the executive branch, would have preferences toward the other end of the spectrum from the legislature.¹⁷ Theoretically, we would expect that, under divided government, agencies could simply obtain their desired policy. On the other hand, determining what policies lie within this region is an inexact science: many policies, childhood immunization included, are multi-dimensional (e.g., traditional vs. holistic medicine, and individualistic vs. community orientation, in addition to limited vs. activist modes of government). Further, under divided government, there is less discretion given to the bureaucracy in the form of legislation *and* less political intelligence about what types of regulations might be acceptable to the legislature (Yackee and

¹⁶ For example, this committee could have the power to review and overturn agency rules.

¹⁷ As an example, a Democratic governor's agency may have more left-leaning policy preferences, whereas the relevant Republican-led legislative committee and full legislature, which is made up of a Republican majority, would have more right-leaning policy preferences.

Yackee, 2009). In sum, divided government may be more of a “yellow” than “green” light for bureaucratic activity, and suggests that divided government alone is not enough to explain implementation behavior.

At the organizational level, professionalism is a distinguishing characteristic that may affect bureaucratic behavior depending on the political environment.¹⁸ As described above, professionalism refers to the extent to which members of the bureaucracy belong to a particular profession or group of professions. At the individual level, bureaucrats are able to benefit from the expertise that their profession conveys through their advanced education and training. Additionally, as a professional, the bureaucrat has access to information and support networks that can assist him/her in the policy implementation process. However, professionalism can also limit bureaucrat behavior. While formal discipline is less prominent in the public health arena, there is still the potential for member self-interest to act as a motivator for guarding the profession. Namely, we would expect members of a profession to be concerned about maintaining professional autonomy and the profession’s reputation, upon which such autonomy is based (Gieryn, 1982; Carpenter, 2010). As relevant to the bureaucrat-professional, statutes are a particular source of autonomy: law outlines the boundaries within which bureaucrats can implement policy. Bureaucrat-professionals work within government because they care about policy and, as professionals, want the ability to implement it in the ways they see fit. Bureaucrat-professionals rely on their reputation as knowledgeable experts to expand or maintain their policy implementation authority.

How might professionalism and divided government interact to affect bureaucratic behavior? As described above, bureaucrat-professionals can utilize their personal motivation and professional means (i.e., expertise, information, and support networks) to do more than a

¹⁸ In Chapter 2, I will discuss bureaucratic professionalism in greater detail.

bureaucrat without access to the profession: they can promulgate more rules, implement more evidence-based programs, etc. Yet, divided government presents a challenge because it is more difficult to determine what actions are acceptable and a mistake in this regard is more costly. In addition to oversight hearings, which may cast the department and the profession in a bad light, a unified legislature represents a threat because it can pass legislation to limit the bureaucrat's authority to act in the future.¹⁹ Given their professional identity and commitment to policy, bureaucrat-professionals will limit activities such as rulemaking during divided government. To put these limits in the context of Figure 1-1, professionals will strategically choose *not* to move a policy in their preferred direction. Rather, they will settle for the status quo policy in the short term due to the difficulty of determining what rules are politically acceptable, and thus of less risk to the profession.

Institutional design can place additional constraints on bureaucrat-professionals and further lessen opportunities to act. By centralizing and politicizing authority, executives such as governors can exert greater control over the bureaucracy (Moe, 1985a). Research at the federal level has shown that agencies with these features (i.e., cabinet-level agencies) are particularly affected by divided government conditions (Yackee and Yackee, 2009). At the state level, boards of health are a centralized authority because most have oversight over behaviors such as rulemaking. And, they are politicized because the governor helps select its members. When writing rules, bureaucrat-professionals will also need to consider the preferences of the board of health, which, in turn, are also sensitive to political conditions.²⁰ Thus, the presence of a board of

¹⁹ This assumes that there is either a veto-proof majority or the governor signs the bill because there are other aspects of it that are favorable.

²⁰ To use the political science terminology, boards of health can act as “veto players.” Generally, the prospect of policy change decreases as you add veto players, when there is less agreement among the veto players, and when members of a unit disagree on policy (Tsebelis, 1995). States with a board of health effectively add a veto player. Additionally, under divided government, boards of health are likely more aligned with the governor than the

health is likely to exert a more limiting influence on bureaucrat-professionals' behavior under divided government.²¹

Above, I have presented the argument that rulemaking is a strategic choice made based on political, organizational, and institutional factors: will bureaucrats propose and adopt rules? More generally, implementation is also based on strategic choices: depending on their political, institutional, and organizational environment, how will bureaucrats implement the rules, and why do they implement the rules in this way? First, building on Baumgartner and Jones (1993), I argue that shifts in venue are important to understanding policy implementation. A venue shift—whereby another entity is given policy implementation responsibility—has the ability to realign incentives with organizational mission, which in turn strengthen the relationship between a policy's goals and desired outcome. Second, giving discretion to local entities may be beneficial if client characteristics are varied and bureaucrats are responsive to their needs. Third, while prior work suggests that granting discretion to a local entity leads to a lack of responsiveness (Lipsky, 1980), centralized direction by an institution such as a state department of health can address these concerns. Fourth, professionalism underlies much of this argument, in that it connects to organizational mission, bureaucrat responsiveness, and centralized direction that serves to protect the rule.

legislature, leading to further disagreement. Finally, boards of health are comprised of health professionals, advocates, and private citizens, which means that there may be policy disagreement among its members.

²¹ We can consider the Board of Health in the scenario depicted in Figure 1-1. As members of a Board of Health are most often appointed by the governor (Hughes, 2011), it is likely that the Board has more liberal preferences than the full legislature (again, assuming that the governor's preferences are mirrored by the agency). However, as described in Chapters 6 and 7, these Boards are also comprised of health professionals that may want to limit behavior that could be damaging to their profession.

IV. Plan of the Dissertation

As outlined above, the dynamics between political, organizational, and institutional forces may help explain agency implementation behavior from the perspective of the individual bureaucrat. Yet, too often, our explanations of agency behavior ignore the differing backgrounds that bureaucrats bring to their positions and how these individuals collectively respond to political and institutional challenges. I address this weakness in this dissertation, which proceeds as follows.

In Chapter 2, I discuss the definition and measurement of bureaucratic professionalism. I first review existing definitions of professionalism in the literature and provide my own definition of the concept. I introduce a theory of how professionalism affects bureaucratic policy implementation in a separation of powers system, which I refine through interviews with state government employees and professional association representatives. This theory considers the costs and benefits of regulatory behavior from the perspective of the individual bureaucrat, and how professionalism alters the cost-benefit calculus. I later propose specific hypotheses and test this theory in Chapter 4.

In Chapter 3, I examine why bureaucratic professionalism varies from state to state. More specifically, I address the question of why a state legislature or governor might sometimes prefer agencies to be highly professional, but do not find this necessary at other times. I use four different measures of bureaucratic professionalism: the salary of the health agency head, the share of medical professionals in state government, the percentage of non-clerical workers in the public health agency, and the percentage of public health professionals in the public health agency.²² I find that increasingly professionalized legislatures have a negative effect on the presence of bureaucratic professionalism, all else equal. However, legislative professionalism

²² Of note, the latter two variables are available only for 2010 and 2012.

has a positive effect on bureaucratic professionalism under divided government conditions. Importantly, these findings depend on the operationalization of the dependent variable and are inconsistent across different models.

In Chapter 4, I elucidate how and under what conditions variation in the extent of bureaucratic professionalism affects state public health policy by focusing on childhood immunization rulemaking from 1998 to 2012. The particular conditions of interest include: the level of bureaucratic professionalism, the presence of divided government, and the existence of a board of health. I elaborate on my theory of bureaucratic professionalism and propose specific hypotheses for testing. I estimate negative binomial models and control for factors such as the party of the governor, legislative review powers and professionalism, budgetary and staff resources, and demand for regulation. I find that states with a greater proportion of bureaucrat-professionals in state government propose fewer immunization rules under divided government. Overall, these results provide support for my theory and suggest that bureaucrat-professionals see divided government as a time to exercise caution, as a political misstep may have the potential to undermine their future rulemaking authority.

I then turn from rulemaking to the implementation of rules. In Chapter 5, I conduct a case study to describe how local bureaucrat-professionals implement a state rule. The particular case is the 2015 Michigan immunization waiver rule, where parents who want to exempt their child from vaccination must first attend an education session with a health professional at their local health department (LHD). The primary source of data is interviews with individuals involved in implementing the rule in a representative sample of Michigan's local health departments (N=16 LHDs). In particular, I explore how these local-level professionals employ their discretion, as

well as the internal (i.e., departmental) considerations that affect the implementation of the rule. In doing so, I provide an illustration of the various implementation steps that follow rulemaking.

In Chapter 6, I examine the role of bureaucrat-professionalism in the implementation of a state rule. While Chapter 5 explores the internal factors that affected implementation, Chapter 6 identifies how the aspects of bureaucratic professionalism influence local-level implementation and considers how external factors—namely political threats and managerial oversight— influence how bureaucrat-professionals implement a rule. In addition to the interviews mentioned above, I also incorporate legislative histories, legal complaints, and other primary source data into my analysis. I find that, despite their resource constraints and discretion, LHDs are responsive to the needs of their waiver clients and implementation variation arises as a result. LHDs adopt an approach that respects and accommodates waiver-seeking parents, which suggests another facet of bureaucratic professionalism: conflict management and absorption. With this approach, LHDs are lessening parental anger toward the rule. As a result, they may also be diffusing political opposition that could threaten the longevity of the rule. It is important to recognize that waiver education clients are likely politically advantaged, in contrast to the marginalized populations that typically interact with street-level bureaucrats. Additionally, LHDs receive programmatic direction from the state department of health, as well as oversight that steers LHDs away from potentially problematic implementation decisions. This suggests that, while professional culture may informally guide when and how to use discretion, other entities, such as the state, may be effective in providing direction in a more formal capacity that ensures that the profession's long-term policy goals are achieved.

Finally, Chapter 7 summarizes my theory and findings, and provides concluding observations. I expand on the notion that professionals respond to formal and informal direction

when determining when and how to use their policy discretion. While this dissertation focuses on bureaucratic professionals within state health agencies, I outline some aspects that may be generalizable to other agencies and levels of government. I also provide potential implications for public health policy that can be derived from this analysis. I finish by suggesting additional lines of inquiry that have the potential to enhance and extend the analysis presented herein.

Public health agencies are charged with the task of preventing disease among and promoting the health of their population. In this dissertation, I explore the conditions under which bureaucrats at the state level promulgate rules and consider variations in professionalism as a key organizational characteristic that affects implementation behavior. I also consider the implementation of rules from the perspective of LHD employees. Overall, I find that the actions of these individuals are not immune to politics. Rather, professionals respond to potential political threats to their discretion by limiting certain behaviors. Additionally, in the absence of present threats, professionals take steps to avoid generating political conflict in order to achieve the long-term goal of protecting the public's health.

CHAPTER 2

Bureaucratic Professionalism: Definition & Measurement

Those who work in government have been characterized numerous ways. Depending on whom you ask, the term “bureaucrat” may conjure up images of lazy future pensioners or pedantic, red-tape stalwarts. However, bureaucrats can also be viewed as reliable workers who believe in the value of public service and the power of policy to transform lives. Within this “worker” category, some bureaucrats, whom I term “bureaucrat-professionals,” are distinguished by their professional identity and training. The purpose of this chapter is to define bureaucratic professionalism explicitly and contrast it with prior discussions of the concept. It concludes with a discussion of potential measures that operationalize bureaucratic professionalism in different ways. While this chapter focuses on bureaucratic professionals within state health agencies, some aspects may be generalizable to other agencies and levels of government.

I. Professionalism in the Literature

This section reviews how prior scholars have thought about professionals and their role in policy implementation. Treatment of professionalism can be subdivided based on two key features, the primacy of norms and the necessity of neutrality. While this review is not meant to be exhaustive, it provides some insights as to how scholars defined professionalism in the past and potential problems with these definitions. As a preview, I argue that an adherence to norms

is not sufficient for the study of professionalism. I also argue that neutrality is not a necessary characteristic. I offer my definition of bureaucratic professionalism in the following section.

A. Toward a Definition of Bureaucrat-Professionalism

In their 1933 work, *The Professions*, Carr-Saunders and Wilson see professionalism as emerging from “the existence of specialized intellectual techniques, acquired as the result of prolonged training” (p. 284-5). Further, professionals adhere to codes of conduct and monitor themselves and their professional community based on such codes. Brint (1996) describes professionals as “people whose ties to the skills and cultures of an organized occupational group provide structure for markets for professional labor. Disciplinary training and ties out to the occupational group also provide a constraint on the hierarchical control of the organizations professionals work for” (p. 24). These definitions highlight certain elements of professionalism, such as the importance of developing expertise. They also indicate the existence of a professional community that establishes cultural norms and can exert some control over those that violate such norms.

I am concerned with a particular type of professionalism—bureaucratic professionalism—whereby individuals of a professional group are also a part of the bureaucracy.²³ In his work on local-level bureaucrat-professionals, Teodoro (2011) employs the following definition:

Professionals are persons with specialized scientific, technical, or other formal education, whose labor value is reducible to their expertise in providing some knowledge-based service. Professionals form organizations, or professional societies, to facilitate information exchange and to self-regulate or seek government regulation.

²³ While “bureaucrat-professional” is my term, the scholars cited here examine professionals within the bureaucracy and thus are studying bureaucrat-professionals.

*Professions establish the ethical principles and guidelines for practice that professionals are supposed to observe. Professions also define professionals' paths to career advancement to a greater or lesser extent (p. 10)*²⁴

Similar to Carr-Saunders and Wilson (1933) and Brint (1996), Teodoro establishes expertise as a characteristic of bureaucrat-professionals and notes the role of principles, which are similar to cultural norms.²⁵ Additionally, he joins other scholars in calling attention to the information-sharing (e.g., Sigelman, 1976; Barrilleaux, Feiock, and Crew, 1992) and self-regulatory (e.g., Carpenter 2001 and 2010; Miller and Whitford, 2016) roles that the professions play in government.^{26, 27}

B. The Primacy of Norms

As the above scholarship indicates, bureaucratic professionalism appears to be a multi-dimensional concept. Yet, some scholars primarily equate professionalism with norms, or in some cases, see norms as the overriding characteristic of professionalism.²⁸ Two examples of this approach are the debates between Carl Friedrich and Herman Finer in the first half of the 20th century. Friedrich argued that the “inner check” of professionalism (i.e., standards, norms)

²⁴ Teodoro incorporates the following works into his definition: Carr-Saunders (1936), Polanyi (1957), Wilensky (1964), Larson (1977), and Abbott (1988). Later, he employs a narrower definition: the “adherence to standards” set and maintained by an external peer group (p. 61).

²⁵ Other scholars, such as Silberman (1993) note the importance of expertise and norms in bureaucratic roles. His case studies indicate that allegiances might be slightly different depending on context: in the U.S., bureaucrat-professionals are professionals first and bureaucrats second, where professionals can exit and pursue a career in the private sector. In other countries such as France, however, individuals receive training to join the bureaucracy and derive their organizational identity from the bureaucracy rather than the profession.

²⁶ Carpenter’s work focuses mainly on the reputations bureaucrats construct for their agencies. For example, an agency develops a reputation for expertise through “scientific accuracy, methodological prowess, and analytic capacity” (2010, p. 46). However, he also links these reputations with the importance of networks and other aspects of professionalism. To cite one example, in his analysis of USDA tenure, he finds that bureaucrats who are part of professional associations remain in the agency longer than those not connected via such networks (2001, p. 225).

²⁷ Later in this chapter, I advocate for placing norms within self-regulation, as norms can encourage and discourage behavior.

²⁸ Although Miller and Whitford’s definition of professionalism emphasizes the importance of norms, they also note that expertise, a long-term career perspective, professional insularity, and professional discipline form the underpinning of the profession’s social code.

guaranteed bureaucratic accountability (1940) and that colleagues could ensure that professionals operated within the bounds of the group's ideals. In contrast, Finer (1936, 1941) believed that professionalism (i.e., norms) was inadequate for democratic accountability and advocated the need for hierarchical institutions to constrain bureaucrats from within rather than rely on enforcement from without. Other works focusing on the bureaucracy also treat professionalism primarily as values-driven. Brehm and Gates (1997) note that professional values, such as the importance of responsibility and pride in one's work, significantly influence bureaucratic behavior.²⁹ In a similar vein, Meier and O'Toole (2006) treat professionalism as a "surrogate for bureaucratic values" (p. 104). According to Knott and Miller (1987), professionalism consists of norms and "professional management of large, hierarchical, specialized organizations" (p. 64). Finally, in his seminal work, *The Forest Ranger*, Herbert Kaufman emphasizes the importance of professional norms within agencies, as they help develop and maintain a sense of "unity" by lessening barriers that may emerge due to difference in status, language, or attitude (2006). He further described how local norms may subvert professional norms, and the steps the Forest Service takes to alleviate this concern.³⁰ Although Kaufman also describes the role of training and education, much of his focus is on how hierarchical management techniques and departmental norms, rather than an external group, shape the behavior of the professional forester.³¹

²⁹ They coin the term "principled agents" to refer to bureaucrats that engage in hard work rather than shirk their duties or sabotage policy (Brehm and Gates, 1997, p. 202).

³⁰ This is seen in Lipsky's discussion of "street-level bureaucrats" in which professional norms that dictate a client-oriented mindset fall victim to the organization's limited resource context and prevailing modes of behavior (1980).

³¹ To Kaufman, expertise acquired *outside* the department is a precondition of employment rather than an essential part of what it means to be a professional. For example, he writes that "post-entry training in the Forest Service expands the abilities needed to conform to preformed agency decisions" (2006, p. 175).

While reducing professionalism to norms may be suitable for some research questions, it falls short for others.³² One cannot simply become a professional (e.g., physician) by adhering to the norms of the professional (e.g., medical) community. One has to first be accepted into the community in order to abide by its norms and receive the benefits of this association. This acceptance requires that the individual obtain a certain level of expertise. As I will outline later, it also may involve information-sharing and support networks, as well as being subject to self-regulation. While self-regulation includes norms, it also includes other aspects such as formal discipline and reputation concerns. In particular, members of a profession may limit their actions to protect the profession's reputation.³³ In doing so, these professionals are ensuring the ability of the profession to benefit from their cultivated reputation at some future point in time.

C. The Necessity of Neutrality

Carr-Saunders and Wilson (1933) caution that professions should remain neutral in policy discussions involving ethical judgments such as to what lengths physicians should go to prolong human life: "Professional associations should not take sides on these issues, even if all members think alike; if they do so, they are inevitably suspected of being moved by political and not by professional motives" (Carr-Saunders and Wilson, p. 486). They note that professionals are occasionally drawn into policies that have a political bent. In these instances, professional associations should "found their [policy recommendations] on a documented case and present

³² For example, if researchers are particularly interested in the effects of professional socialization or values on bureaucratic behavior, a focus on norms would be appropriate.

³³ Norms and reputation are related, but distinct, concepts. Norms are informal rules that govern behavior. Helmke and Levitsky consider norms informal institutions, which they define as "socially shared rules, usually unwritten, that are created, communicated, and enforced outside of officially sanctioned channels" (2004, p. 727). One hypothetical example of norms in medical practice is physicians refraining from connecting with patients personally on social media, as such behavior may leave physicians vulnerable to accidentally disclosing personal patient information. Reputation, on the other hand, is the "set of symbolic beliefs about an organization" that empower and constrain behavior (Carpenter, 2010, p. 33). Norms can contribute to the overall reputation of a profession. To continue the example above, refraining from personally connecting on social media can combine with other formal and informal rules about disclosing patient information to generate a belief that physicians appropriately use patient information in a confidential manner.

them as the result of a prolonged and serious study upon an appropriate occasion” (p. 487). The notion that neutrality is (or should be) a quality of professionalism is a second demarcation between definitions of bureaucratic professionalism.

Prior scholars have described neutrality as a desirable quality of bureaucratic professionalism. For example, Moe (1985b) outlines the complex relationships that affect National Labor Relations Board (NLRB) staff behavior. He characterizes the staff as professional due to their responsiveness to shifting enforcement criteria, which is based on principal preferences.³⁴ In other work, Moe (1987) describes how NLRB board and staff member professionalism means that they do not act in a strategic manner, but rather in service to the bureaucratic organization.³⁵ Similarly, Knott and Miller describe “neutral competence” as a quality of bureaucratic professionalism (1987). In their work on federal financial regulators, Miller and Whitford (2016) similarly characterize bureaucracies as neutral and note the benefits of neutrality: “Delegation to a neutral bureaucracy is the natural form of compromise between competing political perspectives.” (p. 102). Additionally, they appear to paint the professional as the opposite of, or in service to, the political.³⁶ Kaufman examines how bureaucratic decisions are made in a hierarchy, particularly whether bureaucrats follow the decisions made from above. He notes that he is not considering the “desirability or deficits of prevailing policy” (2006, p. xxvii). Thus, his treatment of bureaucratic behavior tends towards neutral competence rather than

³⁴ Moe describes the NLRB as less politicized during his study period, which is likely why the professional staff appear to be behaving more neutral and technocratic.

³⁵ Later, Moe states that professionalism and political control can complement each other. He describes professionalism as “a vehicle for the orderly exercise of political control” because professionals are of a type that has predictable goals and standards (1987, p. 292).

³⁶ To illustrate, they describe how young, presumably inexperienced, Republican election staffers replaced professionals during the 2003 Iraqi occupation (p. 98). They also cite Moe’s work on the NLRB as an example of a neutral bureaucracy. On the other hand, they recognize that the professional views of a bureaucrat can become political, such as the case where a NASA official refused to bow to political pressures from the Bush administration on global warming.

policy competence, where bureaucrats are occasionally confronted by policies that appear insufficient professionally, but acceptable politically.^{37, 38}

However, professionals, particularly those working within government, are often involved in policy debates where neutrality does not come naturally.³⁹ First, counter to Carr-Saunders and Wilson, professionals do participate in decisions that have an ethical component. Health professionals have provided their perspective on numerous policy issues that involve ethical and judgments, such as providing abstinence-only education, mandating a vaccine for a sexually-transmitted disease, determining which drugs should be “fast-tracked” for approval, or permitting physician-assisted suicide. Or, bureaucrats may find themselves in situations where professional judgments of a policy based on their expertise are at-odds with political considerations.⁴⁰ Thus, if our focus is not whether policies are implemented, but whether they are implemented well—and well according to whom—neutral competence may not be a useful quality in an evaluative sense.⁴¹ This is not to say that professionals or professional associations are always united in their beliefs on what represents the “best” course of action, but it is a recognition that health professionals and other professionals within the bureaucracy are not apolitical.

This idea that professional expertise can be seen as politically neutral, or that facts themselves are neutral, may be history and context-dependent. In the time of Carr-Saunders and

³⁷ Indeed, Kaufman discusses neutral competence as key value of public administration in prior work (1956). Here, he notes a dichotomy between conducting government work according to objective standards, rather than standards set by political or other entities such as professional groups.

³⁸ Although Brehm and Gates do not explicitly use the word “neutral,” they measure professionalism in a way that suggests neutrality. As an example, they ask observers to note the professionalism of police officers as follows: 0 = “Lackadaisical, sloppy, irresponsible”, .5 = “Takes work as just a job”, or 1 = “Serious, businesslike, responsible” (p. 140-1).

³⁹ Other scholars have made a similar point (see for example, Eisner and Meier, 1990).

⁴⁰ See, for example, the American Medical Association’s opposition to the American Health Care Act, proposed by the House in March of 2017: Sullivan, Peter. American Medical Association opposes GOP ObamaCare bill. *The Hill* 03/08/17. <http://thehill.com/policy/healthcare/322889-largest-doctors-group-opposes-gop-obamacare-bill>

⁴¹ Lipsky discusses the notion that professionals in local-level bureaucracies make cultural evaluations that are not neutral; rather, they can be biased in systematic ways (1980).

Wilson, physicians in particular enjoyed power and authority (Starr, 1982). The image of the professional has since changed, where they are no longer responsible “trustees” of knowledge, but rather skilled “agents” for hire (Brint, 1996). Physicians may be trusted even less by policy elites than the general public (Schlesinger, 2002). Due to this lack of trust, it is not impossible to imagine the rise of “alternative facts” at higher echelons of government and their dissemination among a certain percentage of the populace. It appears that we currently live in a very different time, where professionals cannot rely on the neutrality of facts.⁴²

II. Defining Professionalism

I define *bureaucratic professionalism* as the extent of self-regulating, networked experts in a policy-relevant field within an executive branch unit (e.g., agency, division, etc.). I describe each of these components below, conducting interviews and drawing on previous work to refine my definitions. Several interview questions examined the role of professional associations in bureaucratic professionalism because a firm connection to a professional community is a way to provide self-regulation, networks, expertise, and information. In Chapter 4, I argue that professionalism has the potential to affect how bureaucrats evaluate the costs and benefits of rulemaking, and test my hypotheses using state-level immunization regulation data.⁴³ In Chapter 6, I examine the effects of bureaucratic professionalism from the perspective of local bureaucratic professionals implementing a state rule.

⁴² On the other hand, bureaucrats may be able to employ procedural neutrality as a political strategy in some situations (e.g., Huber, 2007).

⁴³ Moe describes professionalism as a quality of groups of individuals that possess expertise through specialized “education and occupational experiences” (1989, p. 272). They will execute tasks in similar ways, governed by professional norms. The end result is that professionals are a “type” with highly predictable behavior. A reputation is built based on this predictability. I expand on this notion of professionalism by including information sharing and networking that supply a benefit to the bureaucrat-professional (N.B., Professional norms can be considered a subset of self-regulation). In Chapter 6, I present conflict management and absorption as another aspect of professionalism that has not been described in prior work.

A. Methods

The theory of bureaucratic professionalism presented herein is informed by interviews with state-level bureaucrats and leaders in the public health profession. I conducted phone or in-person interviews with 30 state-level bureaucrats and 10 individuals connected to the state health policy community across nine states between July 2014 and June 2015.⁴⁴ Tables A-1 and A-2 in the Appendices provide a breakdown by state and position.⁴⁵ I identified common positions within every state and professional community and contacted those individuals for interviews.⁴⁶ Interviewees were contacted via email, with three additional follow-up emails if there was no response. Interviewees were then asked for recommendations as to whom else in their state would be willing to participate in a similar interview. Overall, my response rate was 61%. With the exception of four interviews, all were digitally recorded and transcribed verbatim; detailed notes were taken if the interviewee declined to be recorded. Transcripts were imported into the Dedoose qualitative analysis software package, which assists in the coding and analysis of qualitative themes.

B. A Definition of Bureaucratic Professionalism

The components of bureaucratic professionalism are expertise, information-sharing, networks, and self-regulation. Information is an important part of rulemaking, as bureaucrats must know how to implement, interpret, or prescribe policy to propose or adopt a rule. Gailmard

⁴⁴ Six of the interviewees are former employees.

⁴⁵ Position categorizations were based on interviewee preference. While most individuals were located within a public health agency or division, some were within other agencies that related to public health in some way, such as state Medicaid agencies or the Department of Education. For example, if the employee was located within the Department of Education, he/she addressed issues pertaining to in-school health programs and other aspects of population health.

⁴⁶ I initially chose 10 states, but was unable to secure interviewees for one state (Missouri). Five states were chosen at random: Colorado, Missouri, North Carolina, New Mexico, and Vermont. Five states were chosen based on variation across certain criteria (i.e., per-capita health expenditures, local role in implementing policies, and governor appointment powers): California, Michigan, Mississippi, New Jersey, and Wisconsin.

⁴⁷ Potential interviewees were also identified using a variety of methods, such as professional organization websites, LinkedIn connections, and the University of Michigan alumni network.

and Patty (2013) describe two ways in which bureaucrats can obtain the information they need to know: acquire it by investing resources in learning, or elicit it from private interests. I distinguish between the two in my definitions of expertise, which is the result of acquiring information, and information-sharing, which refers to eliciting information. Although information-sharing occurs in a network, I separate information-sharing from networking because networks also provide support in addition to information. Finally, self-regulation ties the network together, facilitating information-sharing and support, while also maintaining and enhancing experts' professional group identity and value.

i. Expertise

For the purposes of this research, I define *expertise* as possessing specific knowledge or skills. The legitimacy of the knowledge or skills is socially conferred by a profession.⁴⁸ I established that interviewees have specific knowledge or skills relevant to their area of focus by asking interviewees about the top five public health issues facing their state. With limited exception, all interviewees demonstrated knowledge about public health in their respective states through their familiarity with key health issues (e.g., chronic diseases, communicable diseases, social determinants of health and health equity, etc.).⁴⁹ I asked interviewees about their work experience and education to understand the personal context that they brought to their positions. The government, professional (including clinical), and educational experience of these interviewees indicates that they are in a good position to judge the benefits and constraints of belonging to a profession. For example, 39 out of 40 interviewees hold at least a master of arts

⁴⁸ Scientific experts, for example, can reinforce and legitimize their profession by their “use of dispassionate scientific methods of inquiry, validation through peer review rather than mere assertion, and other classic elements of Mertonian science” (Bimber, 1996).

⁴⁹ Interviewees noted their expertise in additional ways. For example, a Colorado Program Manager described different definitions of what constituted “evidence-based” and how this distinction impacts policy choices. Similarly, a retired executive branch attorney in New Mexico discussed the distinction between public health law and health law and how the former may be confused for, or overshadowed by, the latter.

degree: 18 hold an MPH or equivalent, six hold a JD, five hold an MD, and four hold a nursing degree. Most interviewees had experience in more than one sector or level of government.⁵⁰ Of the 10 interviewees involved in the public health professional community at large, six are current or former government employees at the state or county/local level.

Through their expertise, bureaucrat-professionals will be able to overcome the potential disruption a new policy brings to their department's political economy. A disruption occurs because bureaucrats do not have the necessary background to either handle the policy changes immediately or learn what they need to know quickly. Bureaucrat-professionals have invested in learning: as the interviews suggest, bureaucrat-professionals dedicate time to obtaining expertise through specialized degrees and continuing education through professional association membership.⁵¹ Membership facilitates acquiring information by providing seminars, journals, and other professional development resources. The bureaucrat-professional already possesses extensive knowledge about his or her subject, so the cost of obtaining additional expertise to promulgate and implement a new rule would be lower than that faced by a non-professional.

ii. Information-sharing

Information-sharing leads to a maintenance of expertise through learning, where innovative ideas and improved methods are shared. When asked what they gained from interacting with other professionals through a professional association, information-sharing was noted by 14 of the 30 government employee interviewees. A Mississippi executive staffer described a "learning collaborative" initiative that he/she is involved in, whereby bureaucrats in different states get together, learn about a policy issue, develop strategies, and spread these ideas

⁵⁰ Of the 30 government employees, 23 mentioned experience outside of state government, such as in federal or local government as well as in private industry, clinical, academia, nonprofit, or international settings.

⁵¹ To capture the extent to which an interviewee is involved in their profession, I asked them about their membership status and how they interact with professional organizations. All but three respondents indicated that they, or their department, were a member of various types of professional associations.

throughout the country. Other interviewees noted that information-sharing included strategies and tactics for getting public health policies enacted. For example, a North Carolina program director said this of one of the associations he/she belongs to:

They're keeping you fresh in terms of ideas, in terms of tactics...Sometimes what you need to hear from another state is, "Yeah, we thought it was impossible to get that done. We got it done." But there's hope out there and it is something you might try...I'm a big believer in networking and learning from others and stealing good ideas.

Professional associations also recognized their role in this regard, as evidenced by seven of ten interviewees mentioning information-sharing or continuing education as a membership benefit.

Through information-sharing, a bureaucrat-professional can obtain a greater policy benefit than a non-professional. The bureaucrat-professional can serve as an innovator and spread policy ideas to other states, amplifying the sense of satisfaction he or she gets in seeing a rule or regulation have an even greater impact regionally or nationally. Or, they can be an adopter and obtain a policy benefit by utilizing a new rule or regulation from another state. Membership in a professional association also mitigates the costs associated with eliciting information for the bureaucrat-professional. Membership facilitates eliciting information by providing shared professional norms, such as ideological similarities, that enable communication and trust.⁵² Following this, professionals can leverage their membership benefits to gather information, improve upon their expertise, and take advantage of innovations from other states.⁵³

⁵² Gailmard and Patty (2013) provide a case study of the 1930s Securities and Exchange Commission (SEC) in which the ideological similarities between the SEC and financial institutions enabled the SEC to obtain sensitive information that it then used to improve the regulation of the sector.

⁵³ Importantly, the information necessary to maintain and expand procedures, networks, and expertise is organized and perpetuated independently of state governments. This is significant because other theories describe a legislature as limiting autonomy by forcing those within the bureaucracy to rely on outside information by reducing resources or instituting burdensome procedures (e.g., McCubbins, Noll, and Weingast, 1989). If individual bureaucrats are professionals, they have ready access to this information via ties with their professional organizations. These organizations house members that can provide information about regulatory procedures or provide comment on

A non-professional would have greater difficulty eliciting information and engaging in an informational exchange, meaning that he or she would face a barrier to the substantive or strategy knowledge needed to engage in rulemaking.

iii. Networks

As professions are social entities, they reinforce group adherence via carrots and sticks. The carrot consists of the *networks* that support the individuals within a profession. In my interviews, the most often cited benefit of being part of a professional group was the ability to network with others, perhaps for support or collaboration.⁵⁴ A California program manager described it this way:

I'm in a very small program with six or seven people...trying to create movement around this pretty huge issue and so it brings you into professional contact with peers that are doing similar work at the local, state, and federal level. You can share stories and support one another.

Similarly, a Colorado program director stated: “there’s always networking opportunities where you can share your pain in some ways with practitioners in other states who do the same kind of work as you do.” On the association side, four of the ten interviewees mentioned that the networking opportunities they provide were of importance to their members. For example, when asked about the benefits of membership, a national public health leader said that their organization’s “single most important benefit is creating personal relationships and networks.” And, a committee chairperson from the Wisconsin Public Health Association cited a membership survey that indicated networking was among the most valued benefits.

regulations. On the legislative side, bureaucrats turn to individuals representing private interests to influence legislators under certain conditions (Bradley, 2014). If bureaucrats turn to lobbyists, we would also expect that they would turn to fellow members of their profession to help overcome resource constraints and procedural burdens.

⁵⁴ Networks were cited by 18 of the 30 government employee respondents.

Professional associations will tie together bureaucrats who work in similar areas and thus obviate the need for the bureaucrat-professional to try to find a new network for support when a regulation is put in place. Additionally, professional organizations adapt to the needs of their members and incorporate new policy areas into their programming so that bureaucrat-professionals would not have to form a new network in response to a policy shift. As the political economy of the bureaucrat-professional will remain largely intact, the costs of rulemaking are less than those faced by a bureaucrat without professional ties.

iv. Self-regulation

The stick consists of *self-regulation*, where the profession has the ability to guard access to entry and to police the behavior of its own members so that its expertise remains legitimate. Here, I borrow from Gieryn's concept of "boundary work," which is publically undertaken by professionals to protect their turf (1983). Professionals can protect this turf formally by sanctioning their members, such as revoking licensure or membership in professional associations. However, this formal self-regulation was notably absent from the interviews.⁵⁵ At the same time, multiple interviewees noted that membership, and membership dues, was of concern to the professional associations. Thus, there are likely several reasons (e.g., cultural, financial) why professional associations do not formally discipline their members.⁵⁶ This information suggests that policies favored by professionals working in public health may be more difficult to enforce than in an area that has disciplinary tools at their disposal.

⁵⁵ In particular, none of the ten members of the professional community could recall a time when a membership was revoked. When asked whether his/her organization ever had to dismiss a member, a Colorado Public Health Association board member said: "I don't think that's the way most public health groups would work.[...] It's too much of a cordial atmosphere around here."

⁵⁶ Interestingly, there was a suggestion that discipline could be imposed for the opposite reason: a New Jersey health policy advocate detailed an instance in which he/she was asked to refrain from pushing a policy to maintain a relationship with the Commissioner of Health by other association members.

Professionals can also protect their turf in an informal fashion. As described by Gieryn, professionals can endeavor to “enlarge the material and symbolic resources of scientists or to defend professional autonomy” in their appeals to the public (1983, p. 782).⁵⁷ One such resource is reputation, which is defined by Carpenter as the “set of symbolic beliefs about an organization,” that leads to regulatory authority (2010).⁵⁸ Although I did not ask about it explicitly, reputation and authority were mentioned in a few interviews.⁵⁹ Two interviewees mentioned the importance of having your “finger on the pulse” of other government officials to figure out how advance public health policy, either in instances when another group has authority or when you want to push your own authority. Two other interviewees indicated scenarios in which they had the expertise, but lacked the authority to push forward with their agenda.⁶⁰ Finally, my interviews also provided some anecdotal evidence that bureaucrat-professionals will not blindly wield their authority regardless of political context. A former attorney for the State of Michigan described the following situation:

The legislature did not want to touch with a ten-foot pole mandating HPV... When you already know that about the legislature and you also had this authority, how smart is it for you to go ahead and try to do by rulemaking, which you're authorized to do, when you already know that it's a political landmine? [...] Because if the community or the political nature is such, even though you believe that's in the public's interest, you might find somebody clipping your wings as far as your broad and flexible authority goes.

⁵⁷ According to Gieryn, “expansion, monopolization and protection of autonomy are generic features of “professionalization”” (1983, p. 792).

⁵⁸ Note that self-regulation (i.e., regulation of those within the profession) is distinct from regulatory authority (i.e., the authority to promulgate rules and make other regulatory changes).

⁵⁹ Five out of the 40 interviewees mentioned or alluded to reputation and authority.

⁶⁰ A research manager from California noted an instance in which he/she was working on an interdepartmental initiative and he/she was not permitted to work on the public health component. Another sector with seemingly greater reputational clout was given control over this component instead.

This suggests that bureaucrat-professionals who have regulatory authority will likely take great care to guard and maintain it. It also suggests that professionals are playing a longer game, where they balance their political realities with their longer-term goals.

Self-regulation, in the form of reputation, is a double-edged sword for the bureaucrat-professional. A positive professional reputation provides job security and in response, the bureaucrat-professional will be able to take the regulatory actions he or she sees fit. At times, the professional community's consensus on a particular health policy may differ from a state's policy. The bureaucrat-professional will likely feel some pressure to act in accordance with the profession and promulgate a rule to change the policy. Yet, the bureaucrat-professional will also be mindful of the potential damage to the profession's reputation if he or she pushed forward in the face of countervailing political forces. For example, legislators opposed to a proposal could publically shame a department or cast public health in a negative light if the executive branch takes certain actions.⁶¹ Relatedly, interest groups could reframe proposals as being motivated by profit rather than supported by science.⁶² Therefore, pressures to act in accordance with the profession may counterweigh pressures to act in protection of the profession.

C. The Limits of Bureaucratic Professionalism

Extant theories consider professionals' authority to act autonomously due to their reputation (Carpenter, 2010), their expertise in relationship to the potential for political backlash

⁶¹ For example, legislators in Texas pointed to Governor Rick Perry's relationship with a drug lobbyist as the reason for his executive order mandating the HPV vaccine, linking negative connotations of "Big Pharma" with public health. See Goodwyn, Wade. (2011) "In Texas, Perry's Vaccine Mandate Provoked Anger." September 16, 2011 National Public Radio. <http://www.npr.org/2011/09/16/140530716/in-texas-perrys-vaccine-mandate-provoked-anger> Accessed on 8/12/15

⁶² Parent groups opposed to new vaccination policies may lump public health in with other organized interests and describe efforts that are fully in-line with scientific recommendations as part of the "Pharma-Medical Trade-Government Health lobby." This was taken from an article by Dawn Richardson from the NVIC's website, "2014 State Vaccine Legislation in America: Battle Lines Are Drawn & Your Participation is Needed!" Accessed at <http://www.nvic.org/NVIC-Vaccine-News/February-2014/2014-State-Vaccine-Legislation-in-America---Battle.aspx#> on 8/12/15.

(Bawn, 1995), and the fact that professional norms will act as a check on bureaucrat-professionals' behavior (e.g., Miller and Whitford, 2016). In contrast, I consider the limits of bureaucratic professionalism. Expertise and access to information and support networks aid bureaucrat-professionals in their work and can act as a source of autonomy. However, concerns for the reputation of the profession and its long-term viability can also affect how bureaucrat-professionals react to their political and institutional environs.

Much like political parties can be seen as “long coalitions” of politicians (Aldrich, 1995; Schwartz, 1989), so too are professions “long coalitions” of professionals. In the language of organizational theory, professions are natural organizations: “they are collectives whose participants are pursuing multiple interests...but who recognize the value of perpetuating the organization as an important resource” (Scott and Davis, 2015).⁶³ Rather than organizing to reach a goal, perpetuating the organization becomes the goal. Hall (1968) outlines the attitudinal features of professionalism, including the fact that the professional group is the frame of reference for judgments, professionals' work should benefit the public, professionals should be able to self-regulate, and professionals desire decision-making autonomy. As *bureaucrat-professionals*, autonomy is subject to political and institutional constraints. However, the other features remain, meaning that *bureaucrat-professionals* will be mindful of the long-term consequences of their actions, and will be reluctant to take steps that would damage the viability of their profession or their ability to use their autonomy in the future. While certain policy implementation decisions may bring about short-term benefits, such decisions may close off future policy implementation opportunities for all bureaucrat-professionals in a department and may damage the reputation of the profession more generally.

⁶³ This is in contrast to “rational” organizations, which have an organizational lifecycle that ends when a particular goal is reached.

As members of a natural organization, bureaucrat professionals will behave differently in the face of political and institutional challenges because they are cognizant of how their behavior affects their profession. Below, I describe how the presence of divided government and centralizing institutions can influence bureaucrat-professionals' decisions.

i. Divided government and the conditional nature of bureaucratic professionalism

Bureaucratic professionalism increases the benefits and decreases the costs of policy implementation based on the expertise, information-sharing, and networks these professionals bring to their governmental position. The bureaucrat-professional has acquired knowledge about a particular policy area that he or she can then use to implement a particular policy. And, if additional information is needed, the bureaucrat-professional has access to fellow professionals through professional organizations to obtain the requisite knowledge. Finally, professional organizations form a network that can provide support, collaboration opportunities, and/or advice about strategy when implementing a new policy or adjusting to new requirements brought about by a change in policy.

However, the role of reputation is uncertain: it can increase either the costs or the benefits. As members of a natural organization, bureaucrat-professionals' concerns for reputation and the threat they represent to professional autonomy will exert a strong influence on implementation behaviors such as rulemaking. The potential for the reputation component of bureaucratic professionalism to have a negative effect on rulemaking is greater during divided government, where different parties control the executive and legislative branches. These partisan differences usually signify disagreement about policy goals. Yackee and Yackee (2009) state that bureaucrats have greater difficulty making reliable determinations of the types of

regulations that are acceptable during divided government.⁶⁴ The consequences of an incorrect policy determination at the federal level include, for example, serving as the focus of a vice president-led regulatory review initiative (Duffy, 1996) or being subject to months of Congressional hearings (Wood and Waterman, 1991). This added scrutiny is likely damaging to the profession's reputation. Thus, bureaucrat-professionals may view divided government as a perilous, rather than fortuitous, time for rulemaking.

This view of state-level regulatory authority contrasts with examples of certain federal agencies being given *carte blanche* to utilize their expertise to make laws for the good of its citizens. The bureaucrat-professionals I interviewed were keenly aware that even the best policies cannot be pushed regardless of political climate. And, professionals may even hold back when it threatens their research funding and salaries. For example, a Wisconsin Public Health Leader explained: "Public health doesn't know how to play defense," and further described large cuts to spending, including to his/her own salary, that no one fought. This suggests that a complicated political environment, such as divided government, may be viewed as a time for caution, and we would thus expect bureaucrat-professionals to react differently under these circumstances.

ii. Centralizing institutions and the conditional nature of bureaucratic professionalism

Similar to political challenges, institutional design can also place constraints on bureaucrat-professionals' behavior. Here, I consider the effects of what can be termed "centralizing institutions." These institutions can direct bureaucrat-professionals as to how and when they can use their discretion to implement policy. In contrast to divided government,

⁶⁴ Legislators are also more likely to constrain a bureaucrat's ability to enact its preferred policies (Epstein and O'Halloran, 1999; Huber and Shipan, 2002) due to disagreement between the executive and legislative branches. Yackee and Yackee (2009) hypothesize that rulemaking should decrease during divided government at the federal level because the bureaucracy receives less orders to regulate via statute, or if they do, there is less discretion granted in the law.

centralizing institutions turn the focus back to the executive branch because it inserts an additional layer into policy implementation. Executives can also politicize this authority through their ability to appoint members to this institution (Moe, 1985a). As I will discuss in Chapter 4, boards of health represent a centralizing institution because they can block regulations from moving forward. And, as I will discuss in Chapter 6, the state department of health can insert itself into the policy implementation process when programs are left to the local level.

These centralizing institutions also represent another potential influence of the profession. Boards of health are comprised of health professionals, in addition to members of the general public. These same individuals will weigh the benefits of policy implementation against the potential political risks to the profession. Likewise, departments of health are also comprised of health professionals that will steer local health department behavior away from decisions that are detrimental to the profession's autonomy and, relatedly, its discretion to implement policy.

III. Measuring Bureaucratic Professionalism

Now that I have defined bureaucratic professionalism, I will turn my attention to how to measure it. Bureaucratic professionalism can be operationalized in different ways, which I categorize as “top-down,” “bottom-up,” and capability-based. Each operationalization has its benefits and shortcomings, which I review here.

In the “top-down” approach, scholars focus on the agency head as an indicator of agency expertise, which is one aspect of bureaucratic professionalism. Boushey and McGrath (2016) argue that “compensation begets expertise,” meaning that higher executive salaries should correspond to a more professional agency. They employ the difference between bureaucratic and legislative salaries as a measure of the difference in policy expertise between the two branches.

Scholars such as Huber and Shipan have used the “annual salary of the head of the health agency in each state” (2002, p. 165) as a measure of bureaucratic professionalism. One main criticism of this approach is that it assumes the link between compensation and expertise. Boushey and McGrath note that the relationship between salary and expertise does not hold true for those motivated by civic duty and those for whom salary is of no consequence. Thus, a civic-minded physician may be motivated to accept an appointment as head of a state health agency, despite the fact that his or her salary would be higher if he/she was employed as a physician in a clinical setting. The salary approach would assume that this physician has less expertise than his/her higher-paid counterparts in other states. And, while this measure is assumed to capture expertise, we cannot assume that the other aspects of professionalism are in place simply due to the amount of salary being paid. On the other hand, salary data is widely available on state websites and through the Council of State Governments’ *Book of the States*, rendering this measure attractive to scholars seeking to incorporate measures of bureaucratic professionalism.

Turning to the “bottom-up” approach, scholars operationalize professionalism based on the types of employees found within the agency regardless of rank.⁶⁵ Chapter 4 of this dissertation measures bureaucratic professionalism as the share of state government employees who identify as a health professional (e.g., nurse, physician, medical scientist). In their work, Eisner and Meier (1990) include an indicator of economists’ professional training, while Meier and O’Toole (2006) employ a measure of the share of teachers with advanced degrees. This “bottom-up” approach has its shortcomings, as it does not capture the extent of professional affiliation. That is, while professionalism may move in tandem with professional training or education, these aspects do not necessarily reflect other aspects of professionalism, such as the

⁶⁵ Barrilleaux and Miller (1988) employ a hybrid approach between the “top-down” and “bottom-up” types by using “total state Medicaid administrative expenditure” as a proxy for bureaucratic professionalism.

presence of networks and information-sharing. However, I argue that this is the most feasible method to examine the bureaucratic professionalism of all agency employees across states and over time. More importantly, it is a better way to operationalize bureaucratic professionalism when the theory is about the behavior of professionals within the bureaucracy—as is the case here—rather than leadership qualities.

A third approach is to focus on the capabilities of the department, perhaps via staff roles or production. Surveys of state employees or their agencies typically yield this data. The broadest category of role would be something akin to the proportion of white-collar workers or non-clerical employees that serve in a professional capacity. For example, Lewis (2008) compiles data on “white collar occupations that require knowledge in a field of science or learning characteristically acquired through education or training equivalent to a bachelor's or higher degree with major study in or pertinent to the specialized field, as distinguished from general education.”⁶⁶ These employees are aggregated separately from administrative, technical, clerical, blue-collar, and other white-collar employees. Barrilleaux (1999) uses the ratio of public to private salaries—in addition to publications produced and computer access—to operationalize state bureaucratic capabilities.⁶⁷ One main drawback of the capabilities approach is that role-specific data is often unavailable.⁶⁸ Comprehensive survey data that incorporates the extent of professional affiliation (i.e., whether information-sharing or networking) and self-regulation across states and over time does not exist.

⁶⁶ This is quoted from Lewis’s online appendix for Chapter 5, p. 12 available at: <https://my.vanderbilt.edu/davidlewis/data/> (Obtained 07/27/16)

⁶⁷ On the one hand, the use of salary is akin to what is seen in the top-down approach. On the other, this approach takes a broader view because it incorporates all employee salaries with additional variables that capture potential production capabilities of employees (i.e., articles and computing c. 1980).

⁶⁸ The Association of State and Territorial Health Officials (ASTHO) periodically surveys state health departments. Unfortunately, this data is not available prior to 2007 (email communication, 10/13/15) and is not collected annually.

Thus, while no “perfect” measure of bureaucratic professionalism exists, there are three candidate measures available.⁶⁹ Table 2-1 compares measures in terms of their operationalization, utilization, and extent to which they relate to aspects of bureaucratic professionalism.

Table 2-1. A Comparison of Bureaucratic Professionalism Measures

| | “Top-down” | “Bottom-up” | Capability-Based |
|---|---|---|---|
| Operationalized as: | Salary as proxy | Professional Training/Education | Salary, Publications, Resources; Role or Position ⁷⁰ |
| Scholars who have used similar measures (examples): | <ul style="list-style-type: none"> • Boushey and McGrath (2016) • Huber and Shipan (2002) | <ul style="list-style-type: none"> • Eisner and Meier (1990) • Lillvis (2015) • Meier and O’Toole (2006) | <ul style="list-style-type: none"> • Barrilleaux (1999) • Lewis (2008) |
| Aspects of professionalism | <ul style="list-style-type: none"> • Expertise (indirect) | <ul style="list-style-type: none"> • Expertise (by proxy) • Information-sharing (assumed) • Networks (assumed) • Reputation (assumed) | <ul style="list-style-type: none"> • Expertise (by proxy) • Information-sharing (assumed) • Networks (assumed) • Reputation (assumed) |

IV. Conclusion

The purpose of this chapter was to define bureaucrat-professionalism and describe how this concept might be measured. I reviewed prior definitions that focus on professional norms and neutrality and discussed how these elements are not the sole drivers of professional behavior. Based on prior definitions and informed by interviews with state-level bureaucrats and members of professional communities, I defined bureaucrat-professionalism as the extent of self-regulating, networked experts in a policy-relevant field within the bureaucracy. As members of “long coalitions” of professionals, these bureaucrats will behave strategically in a way that

⁶⁹ Other scholars have also examined measures related to the expertise dimension of bureaucratic professionalism, specifically salaries and advanced degrees (e.g., Sigelman, 1976; Barrilleaux, Feiock, and Crew, 1992).

⁷⁰ Generally speaking, professional training and/or education correspond to roles. However, roles do not always correspond with education and training. For example, a public health nurse role is filled by someone with a nursing degree and training. However, a public health emergency preparedness coordinator role may be a nurse, a public health professional, or someone without a specific educational background.

protects the profession over the long term rather than responds to more proximate opportunities.

I then described three different ways to measure bureaucrat professionalism and outlined their strengths and weaknesses. The next chapter examines reasons for the variation in bureaucratic professionalism using the measures outlined herein. Then, Chapters 4 and 6 examine the effect of bureaucrat-professionalism on agency behavior.

CHAPTER 3

Variation in State Bureaucratic Professionalism: A Matter of Personnel Preference?

Bureaucratic professionalism affects policy implementation in profound ways. Studies of policy innovation (Balla, 2001; see also, Gray 1994 for a review), rulemaking (see Chapter 4), and case selection (Eisner and Meier, 1990) have demonstrated that the types of bureaucrats within an agency matter at various stages of implementation.⁷¹ Yet, the reasons for such variation are not well understood. This chapter examines why bureaucratic professionalism varies across states and over time. Further, it ascertains whether bureaucratic professionalism is subject to political constraints.

Existing literature describes how political principals can design the bureaucracy in a certain way to obtain their desired results. Depending on political conditions, the bureaucracy may either be seen as a useful tool or an undesirable rival. Do political principals, namely the governor and state legislature, get the bureaucracy they want? This work draws on the political science and public administration literatures at the American state and federal level to develop theoretical expectations about what types of bureaucrats correspond to political principal preferences. Empirical models take into account the institutional environment, such as the potential for gubernatorial control over agencies and the extent of legislative professionalism. This work adds to our understanding of the variation in bureaucratic capacity across the

⁷¹ Relatedly, Boushey and McGrath (2016) found that, as the expertise gap between the legislature and the bureaucracy grows, greater policymaking (i.e., rulemaking) opportunities are afforded to the bureaucracy.

American states, particularly the extent to which governors and legislatures can shape the agents of health policy implementation.

In the following section, I develop theoretical expectations of the governor's and the legislature's preferences in turn. I then describe my data and model estimation strategy. Next, I present the results of my models using the four dependent variables that measure bureaucratic professionalism. Last, I discuss my results and possible extensions, and conclude. If bureaucracies are truly a matter of personnel choice, political principals will make strategic decisions about how to incentivize the hiring of certain employees in order to obtain certain results (under certain conditions).

I. Theory: State Health Bureaucracies By Design?

A. Professionals as a Type

As defined in Chapter 2, *bureaucratic professionalism* consists of expertise, information-sharing, networks, and self-regulation.⁷² Bureaucrat-professionals are in a position to implement state policy due to the information they acquired via their degree and training (expertise). If the bureaucrat-professional needs further information, he/she will be able to elicit it from knowledgeable parties (information-sharing).⁷³ In addition to easing access to information, networks provide peer support in the policy process. Self-regulation binds professionals together by facilitating information-sharing and support, while also maintaining and enhancing the value of professional group expertise. In sum, bureaucratic professionalism is the extent of self-

⁷² To provide a brief summary, I developed this definition of bureaucratic professionalism by incorporating definitions employed in prior scholarship (e.g., Sigelman, 1976; Brint, 1996; Teodoro, 2011; Miller and Whitford, 2016) and refined it using interviews with 40 state-level actors (30 state executive branch employees and 10 state-level observers).

⁷³ Again, this distinction between acquiring and eliciting information is made by Gailmard and Patty (2013).

regulating, networked experts in a policy-relevant field within an executive branch unit such as an agency.⁷⁴

Due to these features, the behavior of bureaucratic professionals is likely more predictable than that of bureaucrats without a professional affiliation because of the goals and standards set by the profession (Moe, 1987).⁷⁵ One example is the American Medical Association's Code of Medical Ethics, which includes statements such as: "A physician shall respect the rights of patients, colleagues, and other health professionals, and shall safeguard patient confidences and privacy within the constraints of the law."⁷⁶ Another example is the American Nursing Association Code of Ethics for Nurses, which includes the following statement: "[p]atients have the moral and legal right to determine what will be done with and to their own person."⁷⁷ Thus, based on these statements, a physician will be attuned to patient privacy and a nurse will be attuned to patient self-determination in their state government role.

Previous political science literature has demonstrated that bureaucratic professionals behave as predictable types based on training and professional affiliation.⁷⁸ Eisner and Meier show how changes in the training of bureaucrats altered the case selection of the Justice Department (1990). In particular, they focus on how changes in the field of economics led to a

⁷⁴ This definition has political and administrative features. It is political because it incorporates the power relationships within the group and with other entities, demarcating who possesses the expertise and who has a right to be part of the profession. The profession also guards and promotes the value of expertise through self-regulation. It is administrative because it incorporates how the bureaucratic work is done: through the obtainment and deployment of information, and through the utilization of networks.

⁷⁵ The image of professionalism has shifted over time, where professionals are now seen more as skilled "agents" looking to market their skills rather than responsible "trustees" of formal knowledge working on issues of societal import (Brint, 1996). However, Brint notes that shift was less prominent in the public and non-profit sectors, whose professionals retain a societal benefit component.

⁷⁶ American Medical Association. "Principles of Medical Ethics." Available at: <http://www.ama-assn.org/ama/pub/physician-resources/medical-ethics/code-medical-ethics/principles-medical-ethics.page>? Accessed 12/9/15

⁷⁷ American Nursing Association. "Code of Ethics for Nurses With Interpretive Statements." Available at: http://nursingworld.org/DocumentVault/Ethics_1/Code-of-Ethics-for-Nurses.html Accessed 12/9/15

⁷⁸ DiMaggio and Powell theorize that organizations that rely on certain academic credentials for hiring decisions will be more like other organizations that hire from the same field (1983). Thus, state-level health departments with similar professional compositions will be distinct from those states that do not.

shift from PhD-trained bureaucrats who adhered to a “structuralist” framework for case selection to the rise in Chicago School-trained PhDs who adhered to another.⁷⁹ Professional associations facilitate the dissemination, or diffusion, of policy ideas from shared knowledge among experts to their actual implementation by government agencies (see for example, Gray 1994). Balla (2001) found that the professional affiliation of state insurance commissioners affected the likelihood of adopting a particular policy. To the extent that these policies are attractive to political principals, professionals may be hired based on the expectation that they will deploy their policy solutions to address a particular governmental need (Teodoro, 2009).

By turning to bureaucrat-professionals, political principals will be able to guard against adverse selection and influence policy in predictable ways.⁸⁰ However, predictable is not equivalent to desirable. That is, there may be circumstances in which unpredictable behavior is preferred. If bureaucracies are truly by design, principals will make strategic choices about whether to incentivize the hiring of bureaucrat-professionals in order to influence policy implementation.⁸¹ The following sections describe a theory by which bureaucrats are put in place by political principals.

B. The Legislature’s Decision to Delegate

There are mechanisms by which the legislature can influence the bureaucratic professionalism of an agency. Legislatures make choices about whether or not to delegate based

⁷⁹ As described by Eisner and Meier, the 1960s and early 1970s marked the dominant period of the Structure-Conduct-Performance (SCP) framework. As its name suggests, agency economists adhering to the SCP framework focused on what they viewed as the structural causes of collusion, and therefore prioritized monopoly and merger cases. This was based on the logic that such structures lead to collusion, and allowing more players into the market would therefore promote efficiency. In contrast, with the rise of the Chicago School framework in the 1970s, price fixing cases were prioritized because monopolies were seen, not as precursor to collusion, but rather as the result of an efficient market (1990, p. 271-3).

⁸⁰ Note that I do not place a value judgment on the ways in which policies will be affected. I simply expect that the change will be predictable (rather than predictably better or worse than the status quo).

⁸¹ There is no “right” level of expertise that leads to optimal performance. In the state budget context, Krause, Lewis, and Douglas (2006) found that a mix of merit- and appointee-based employees was associated with the most accurate revenue forecasts.

on factors such as bureaucratic expertise, a component of bureaucratic professionalism (Epstein and O'Halloran, 1999).⁸² An increasingly professionalized legislature can employ its resources to be more prescriptive in its policymaking, decreasing the discretion it gives to the bureaucracy (Huber and Shipan, 2002). Prescriptive policy lessens the need for bureaucrat-professionals and may render agency positions less desirable because a lack of discretion leads to a loss of professional autonomy.⁸³ In this way, a more professionalized legislature lessens both the necessity for a professionalized bureaucracy and the attractiveness of a government position to potential bureaucrat-professionals.

Let us assume that state health departments work on specific policy implementation tasks (i.e., assessment, policy development, assurance, and research).⁸⁴ Some of these tasks can be shared with the legislative branch. If they are shared, the staffing needs of state health departments may change. To illustrate, consider two states: State A, which has a full-time, well-staffed legislature, and State B, which does not. Given its strengths, State A's legislative branch can take on certain tasks, such as developing health policies and evaluating the quality of health services in the state. Or, the legislature and the executive branch can agree to contract with a third entity, such as a university or private enterprise.⁸⁵ This, in turn, lessens the need for the health department to conduct these functions. Experts (i.e., bureaucrat-professionals), given their knowledge and employability in the private sector, are likely more expensive than generalists

⁸² Miller and Whitford argue that conflict, rather than expertise, predicts delegation, where the legislature will delegate to the bureaucracy as a compromise position (2016). However, their argument rests on the assumption that the bureaucracy is a neutral party that can balance competing interests.

⁸³ See Brint (1996) for a discussion of the importance of autonomy as a professional value, which includes the ability to make judgments about "proper courses of action" and the need for "meaningful and self-directed work" (p. 83-4).

⁸⁴ This list is based on the Association of State and Territorial Health Officials (ASTHO)'s "Essential Services" of State Public Health Systems. <http://www.cdc.gov/nphpsp/essentialServices.html> Accessed 12/18/15

⁸⁵ One example of this is Wisconsin, in which the state lab is housed at the University of Wisconsin rather than within the executive branch.

from a budgetary standpoint.⁸⁶ Thus, if the legislature or a third entity can take on part of the assessment, policy development, assurance, or research functions, we would expect the composition of State A's bureaucracy to shift from bureaucrat-professionals (i.e., health professionals) to generalists. In contrast, State B would need to rely on bureaucrat-professionals within the executive branch because the legislature could not serve as an effective substitute. The legislature would also not have the capacity to hire, monitor, and retain third parties to fulfill government roles. And, as these functions fit within the mission of the health department, all else equal, the health department will prefer to keep functions in-house rather than contract with a third party. Therefore, State B will have a greater extent of bureaucrat-professionals than State A.

Professionalized legislatures are more likely to have the time and staff resources to invest in their own policy expertise, rendering expertise within the bureaucracy redundant. In these instances, we would expect a lower share of professionals within the executive branch. Conversely, a less professionalized legislature is more likely to turn to bureaucrat-professionals because it does not have the time and staff resources to take on agency functions. This brings us to the first hypothesis:

- *H1: As legislative professionalism increases, bureaucratic professionalism decreases.*

C. Delegation and Preference Alignment

In a system of separate and shared powers, it is also important to consider how the preferences of the governor alter the dynamic between the legislature and the bureaucracy.

Studies have demonstrated that the extent of legislative professionalism affects the relationship between the legislative and executive branches (Huber and Shipan, 2002; Woods and

⁸⁶ I do not consider the effects of state "revolving door laws" here, though work by Law and Long (2011) indicates that such laws have a negative effect on the expertise of public utility managers.

Baranowski, 2006; McGrath, 2013; Boehmke and Shipan, 2015). The relationship between legislators and bureaucrats relies on the assumption that some legislatures can improve their state's policy implementation efforts by delegating to the bureaucracy. However, delegation is not a universally preferred strategy because bureaucracies may also be responsive to governors.⁸⁷ Thus, agencies can “drift” from the preferences of the legislature (Shepsle, 1992). The potential for drift makes delegation less likely when the governor and the legislature have diverging policy preferences. I assume that a decrease in delegation lessens the need for agency implementation capacity *from the perspective of the legislature*.⁸⁸ Further, professionalized legislatures are less likely to delegate to the bureaucracy when legislative and gubernatorial preferences diverge (Huber and Shipan, 2002). At the same time, governors have their own need for agency capacity given their own policy implementation goals. Additionally, the governor has budget-setting advantages (Kousser and Phillips, 2012) that can, in theory, help pay the cost of hiring bureaucrat-professionals.⁸⁹

There are instances in which the governor and the legislature disagree on policy and the legislature is no longer seen as a viable substitute. Let us again consider two states, State A, which has a full-time, well-staffed legislature, and State B, which does not. However, let us now consider these states under two conditions: one in which the preferences of the legislature and governor are aligned, and one in which they are not (see Figure 3-1). Here, alignment depends on

⁸⁷ In his examination of the EPA's Superfund program, Whitford (2005) demonstrated that the presence of multiple principals leads to a “tug-of-war” in which the agency pushes to fulfill its preferred policy goals as discretion allows.

⁸⁸ An alternative argument would be that professionals minimize drift, so policy disagreement would lead to an increase in agency-level professionalism (Miller and Whitford, 2016). However, legislative professionalism is constant at the federal level—that is, Congress is a highly professionalized legislature. Therefore, we also need to consider situations in which preferences diverge, but the legislature's ability to take on the bureaucracy's role is diminished. Miller and Whitford argue that agency professionalism can serve as a check on legislative power, yet a state with a less professionalized legislature would not be able to counterbalance the bureaucracy in the way that the U.S. Congress can. When legislative implementation capacity is outstripped by the executive branch and preferences diverge, we should look to the governor to help explain the amount of bureaucratic professionalism observed.

⁸⁹ Kousser and Phillips (2012) note that legislative professionalism decreases gubernatorial budget *gains*, but the overall effect of legislative professionalism on gubernatorial gains is, as the wording suggests, still positive.

party, where a governor and both houses of the legislature are either completely under the control of Democrats or Republicans. I review these four scenarios below.⁹⁰

There are situations in which the legislature and the governor have similar preferences (e.g., unified party control of the legislative and executive branches). Here State A's professionalized legislature will use the resources it has at its disposal to undertake policy implementation tasks. This lessens the need for the health department to conduct these functions, where we would then expect less bureaucratic professionalism (see Figure 3-1, quadrant II). As a result, the composition of State A's bureaucracy will shift from bureaucrat-professionals to generalists.⁹¹ In contrast, State B does not have a professionalized legislature that can fill the policy implementation role. It also lacks the expertise to contract with a third party to take on necessary public health tasks and monitor the performance of the third party. Thus, we would expect the bureaucratic professionalism of the agency to increase in order to take on these roles (see Figure 3-1, quadrant III). In the absence of divided government, State A, with its professionalized legislature, would have fewer bureaucratic professionals than State B (i.e., II < III).

However, the legislature and the governor may have different preferences regarding policy implementation. This preference divergence may arise because the legislature and governor have ideological differences about implementation.⁹² Or, it may arise because the legislature and the governor prioritize different policy areas. One circumstance in which

⁹⁰ I acknowledge that Nebraska has a unicameral legislature. However, I exclude this state from my analysis because its legislature is nonpartisan, and it would be therefore challenging to identify their governing regime as divided or not.

⁹¹ To elaborate on this point, the highly prescriptive policies put forth by the legislature impinge on professional autonomy and render government positions less attractive to health professionals, who in turn have viable private sector prospects. One may then argue that perhaps the legislature is prescribing exactly what bureaucrat-professionals would want to do anyway; on its face, this appears highly inefficient to the policy process and I therefore assume that it is unlikely.

⁹² One example of this in the health arena is the implementation of a teen pregnancy prevention policy. Conservatives may prefer abstinence-only education, while liberals may prefer safe-sex education.

preference divergence occurs is divided government, which for the purposes of this chapter, I define as a legislature unified of one party and the governor of another. When preferences diverge and the legislature is more professionalized, as in State A, governors have a greater incentive to increase the professionalism of the executive branch relative to when preferences are aligned (see Figure 3-1, quadrant I). These professionals can monitor the activities of the legislature more effectively because of their knowledge base. They can also conduct implementation tasks in a manner closer to the preferences of the governor. On the other hand, State B's less professionalized legislature again lacks the capacity to carry or contract out implementation tasks. Here, we would again anticipate more bureaucratic professionalism (see Figure 3-1, quadrant IV). Recall my first hypothesis, which states that bureaucratic professionalism will decrease as legislative professionalism decreases. As a result, in the presence of divided government, State A would have fewer bureaucratic professionals than State B (i.e., $I < IV$).

Furthermore, we must consider how the switch to divided government affects the extent of bureaucratic professionalism within State A and State B. First, let us consider State A, with its more professionalized legislature. As mentioned above, the governor will have an incentive to increase the professionalism of the bureaucracy when government is divided (i.e., $II < I$). Second, let us consider State B, with its less professionalized legislature. Again, the governor will have a greater incentive to increase the professionalism of the bureaucracy under this divided government condition (i.e., $III < IV$). Overall, we would expect the least amount of bureaucratic professionalism in quadrant II, a moderate amount in quadrants I and III, and the most in quadrant IV (i.e., $II < I$, $III < IV$). In sum, we would expect the effect of legislative professionalism to be conditioned by divided government:

- *H2: As legislative professionalism increases and there is a switch to divided government, bureaucratic professionalism will increase.*⁹³

Figure 3-1. Bureaucratic Professionalism Conditioned by Preference Alignment

| Legislative Professionalism ⁹⁴ | Preference Alignment | |
|---|--|--|
| | Aligned | Opposed (i.e., Divided) |
| More Professionalized (State A) | Least Bureaucratic Professionalism II | Moderate Bureaucratic Professionalism I |
| Less Professionalized (State B) | Moderate Bureaucratic Professionalism III | Most Bureaucratic Professionalism IV |

D. Delegation and Relative Institutional Power

Legislative professionalism accounts for the power of the legislature to implement policy, and by extension, its willingness to delegate. However, the governor is also endowed with certain powers that provide the means by which he/she can influence bureaucratic behavior. Thus, we also need to consider the governor’s institutional power to control the bureaucracy. Research by Wood and Waterman (1994) at the federal level suggests that appointment powers are an important instrument of executive control. Numerous scholarship indicates that presidents’ appointee choices affect agency behavior (see Lewis, 2011 for a review). At the state level, governors with appointment power have a greater influence over state agencies (see Ferguson, 2014 for a review).⁹⁵ From an administrative standpoint, the governor’s power to appoint may have an effect on the bureaucratic professionalism of the agency.⁹⁶

⁹³ This scenario also produces the following related hypothesis: The marginal effect of divided government on bureaucratic professionalism will be statistically insignificant at very low levels of legislative professionalism (for a graphical representation, please see Figure 1 in Appendix B-1).

⁹⁴ This high/low dichotomy is for explanatory purposes only. The *Legislative Professionalism* variable used in my analyses is continuous.

⁹⁵ Governors are also perceived by state-level bureaucrats as more influential when they appoint the head of an agency (Herbert, Brudney, and Wright, 1983; Brudney and Herbert, 1987).

⁹⁶ There may be objections to my use of appointment power as a measure of the power of the governor. As I am interested in the administrative power of the governor over agencies, I argue that appointment power is appropriate.

Yet, gubernatorial power, in the form of appointment power,⁹⁷ does not exist in a vacuum in a shared powers system. Rather, gubernatorial power should be examined in relation to legislative power, which is captured here by legislative professionalism. How might appointment power affect bureaucratic professionalism, conditioned by the extent of legislative professionalism in a state?

Let us first consider State C, in which the governor has appointment powers (see Figure 3-2). As legislative professionalism increases in State C, the legislature has less of a motive to delegate to the bureaucracy due to its in-house expertise. But, the governor has the means to increase bureaucratic professionalism via his/her appointment power (see Figure 3-2, quadrant II). The governor also has more of a motive to increase bureaucratic professionalism, as he/she will be able to offset the power of the legislative branch with his/her own experts and prioritize programs that are at the top of his/her agenda. On the other hand, if State C has a less professionalized legislature, the governor will have the means and the motives to increase bureaucratic professionalism. Additionally, the legislature will be motivated to delegate based on the expertise of the bureaucracy and the fact that the legislature does not have the resources to effectively implement policy (see Figure 3-2, quadrant III). Following hypothesis 1, when the governor has appointment power, bureaucratic professionalism will decrease as legislative professionalism increases (i.e., II < III)

Turning to State D, where the governor lacks appointment power, the governor will have less control over administrative decisions within the agency. Therefore, the legislature will have

Schlessinger (1965) and Dometrius (1979) conducted early work developing an index of gubernatorial power based on four institutional features: whether the governor can serve more than one term, exert control over the budget, veto legislation, and appoint agency heads. Beyle (2007) updated the index, which included the addition of election procedures and gubernatorial party control. My theory already considers gubernatorial party control in the form of divided government. Within budget power, budget proposal and implementation items may also be important, although I do not theorize about it here.

⁹⁷ Depending on the state, the head of the health department is appointed by the governor, the cabinet secretary, an agency head (e.g., if there is a combined Health and Human Services agency), or a board of health.

greater power to influence the bureaucracy if delegation is attractive (i.e., has more bureaucrat-professionals). In these situations, the governor will prefer an agency characterized by less bureaucratic professionalism (Figure 3-2, quadrant I). By having an agency with less bureaucratic professionalism, delegation becomes less appealing to the more professionalized legislature. At the same time, the governor will be less concerned about the legislature and bureaucracy moving in concert against gubernatorial policy preferences. Additionally, an agency characterized by less bureaucratic professionalism will also behave less as a “type.” This lack of predictability may be appealing if the governor cannot exert political control over the agency via his/her appointment power. That is, the governor prefers a situation in which there is a chance that the bureaucracy will act according to his/her preference, rather than a certainty that they won’t.⁹⁸ Finally, there is the situation in which the governor lacks appointment powers and the legislature is less professionalized. The legislature will delegate to the bureaucracy because it lacks the capacity to implement policy. Meanwhile, the governor has relatively little control over the agency, but neither does the less professionalized legislature. The governor accepts the tradeoff of implementation activities occurring out of his/her control rather than the risks of such activities not occurring at all.⁹⁹ Together, this leads to more bureaucratic professionalism in the agency (see Figure 3-2, quadrant IV). Again, as legislative professionalism increases, bureaucratic professionalism decreases (i.e., I < IV).

What is the combined effect of legislative professionalism and gubernatorial appointee power? Suppose a governor gains appointment power. At higher levels of legislative

⁹⁸ This possibility can be examined empirically. At the federal level, the Department of Health and Human Services is a more liberal agency (Clinton and Lewis, 2008). We may be willing to assume that this holds at the state level as well. Thus, we would expect that governor partisanship would moderate the relationship between legislative professionalism and bureaucratic professionalism in the presence of appointment power.

⁹⁹ Bawn (1995) makes the argument that in areas such as health, when technical uncertainty is high, political principals will grant more autonomy in spite of the risk of bureaucratic drift.

professionalism, we would expect that the governor would respond by increasing his or her own arsenal of experts (i.e., I < II). If legislative professionalism is low, we would expect a smaller effect, as the bureaucracy already houses experts (i.e., IV < III). In sum, we would expect State C, with its appointment powers, to have the highest level of bureaucratic professionalism at low levels of legislative professionalism. On the other hand, we would expect State D, lacking appointment power, to have the lowest level of bureaucratic professionalism when the legislature is more professionalized (i.e., I < II, IV < III).

- *H3: Granting the governor appointment power, as legislative professionalism increases, bureaucratic professionalism will increase.*¹⁰⁰

Figure 3-2. Bureaucratic Professionalism and Appointment Power, Conditioned by Legislative Professionalism

| Governor Control Legislative Professionalism ¹⁰¹ | Appointment Power (State C) | No Appointment Power (State D) |
|--|---|---|
| Higher | Moderate Bureaucratic Professionalism II | Least Bureaucratic Professionalism I |
| Lower | Most Bureaucratic Professionalism III | Moderate Bureaucratic Professionalism IV |

II. Data

A. Bureaucratic Professionalism Variables

As outlined in Chapter 2, there are three different ways that bureaucratic-professionalism can be measured. I have reproduced Table 2-1 from Chapter 2 below and include the data sources used in this chapter.

¹⁰⁰ This scenario also produces the following related hypothesis: The marginal effect of appointment power on bureaucratic professionalism will be statistically insignificant at very low levels of legislative professionalism (i.e., moving between quadrants III and IV). See Figure B-2 in the Appendix for a graphical illustration.

¹⁰¹ Again, this high/low dichotomy is for explanatory purposes only. The *Legislative Professionalism* variable used in my analyses is continuous.

Table 3-1. A Comparison of Bureaucratic Professionalism Measures and Data

| | “Top-down” | “Bottom-up” | Capability-Based |
|---|---|---|---|
| Operationalized as: | Salary as proxy | Professional Training/Education | Salary, Publications, Resources; Role or Position ¹⁰² |
| Scholars who have used similar measures (examples): | <ul style="list-style-type: none"> • Boushey and McGrath (2016) • Huber and Shipan (2002) | <ul style="list-style-type: none"> • Eisner and Meier (1990) • Lillvis (2015) • Meier and O’Toole (2006) | <ul style="list-style-type: none"> • Barrilleaux (1999) • Lewis (2009) |
| Aspects of professionalism | <ul style="list-style-type: none"> • Expertise (indirect) | <ul style="list-style-type: none"> • Expertise (by proxy) • Information-sharing (assumed) • Networks (assumed) • Reputation (assumed) | <ul style="list-style-type: none"> • Expertise (by proxy) • Information-sharing (assumed) • Networks (assumed) • Reputation (assumed) |
| State Health Agency Data Source: | Book of the States | IPUMS CPS | ASTHO |
| Years Available: | 1948-2014 ¹⁰³ | 1987-2013 | 2010, 2012 |
| Dependent Variable Used in Ch. 3: | <i>Agency Head Salary</i> | <i>Share of Health Professionals</i> | <i>Percent Non-Clerical Employees; Percent Public Health Professionals</i> |

First, *Agency Head Salary* is simply the compensation paid to the executive of the health department. This measure indirectly captures expertise, as a higher salary would suggest that the head of the health agency is of higher value. This value may arise due to the expertise of that individual, such that an experienced physician would need to be compensated more highly to entice him/her away from the private sector. Assuming that this is true, salary measures the expertise of the head of the agency, rather than the cadre of directors, managers, and coordinators implementing policies. Or, it could be argued that a more experienced individual is needed to lead an expertise-laden bureau, where a highly competent health professional would be in a better position to oversee the work of other similarly knowledgeable health professionals. This would then translate into a higher salary. In any case, this measure captures expertise indirectly

¹⁰² Generally speaking, professional training and/or education correspond to roles. However, roles do not always correspond with education and training. For example, a public health nurse role is filled by someone with a nursing degree and training. However, a public health emergency preparedness coordinator role may be a nurse, a public health professional, or someone without a specific educational background.

¹⁰³ See for example, salary of principal administrative official (section 4, “Administrative Organization and Finance (p. 203 in 1948-1949 *Book of the States*).

and its relationship to the potential for information-sharing and network support is weak.¹⁰⁴ See Figure B-3 in the Appendix for graphs of *Agency Head Salary* over time, by state.

Second, the *Share of Health Professionals* measure uses education and training as a proxy for expertise, a component of bureaucratic professionalism. It represents the proportion of physicians and surgeons, physicians assistants, registered nurses, nurse practitioners and anesthetists, medical scientists, medical managers, and other health diagnosing practitioners working in state government. This data was obtained from IPUMS (Integrated Public Use Microdata Series), which is based on the U.S. Census's Annual Social and Economic Supplement of the Current Population Survey. This measure also assumes that those of similar professional backgrounds within government will be in contact with one another, in addition to those outside government, and therefore fosters a certain degree of information-sharing, network support, and self-regulation. See Figure B-4 in the Appendices for graphs of *Share of Health Professionals* over time, by state.

Third, the *Percent Non-Clerical Employees* and *Percent Public Health Professionals* measures are based on the Association of State and Territorial Health Official's (ASTHO's) survey of state agencies.¹⁰⁵ *Percent Non-Clerical Employees* consists of the percentage of employees who are not classified as administrative or clerical personnel. *Percent Public Health Professionals* captures those employees within the health department that fall into one of 18 roles.¹⁰⁶ These measures are in some ways more specific than *Share of Health Professionals*

¹⁰⁴ It is difficult to relate these measures to the degree self-regulation felt by bureaucrat professionals within an agency. State-by-state survey data may be the only way to measure this aspect of bureaucratic professionalism.

¹⁰⁵ Data from this study was obtained from the 2010 and 2012 ASTHO Profile Surveys, a project supported through a cooperative agreement between the Association of State and Territorial Health Officials and the Centers for Disease Control and Prevention and the Robert Wood Johnson Foundation.

¹⁰⁶ The categories are: Public Health Nurse, Nurse Practitioner (2012), Physician Assistants (2012), Environmental Health Worker, Laboratory Worker, Public Health Manager, Social Worker, Epidemiologist/Statistician, Health Educator, Public Health Informatics Specialist, Nutritionist, Public Health Physician, Public Health Information

because they capture occupational data in addition to verifying that these individuals actually fill a public health role within government. However, this is again a proxy measure for expertise and other aspects of professionalism are again assumed.

I employ these four measures to examine trends in bureaucratic professionalism across states and over time.

B. Independent Variables

i. Key Independent Variables

The first hypothesis examines the relationship between legislative professionalism and bureaucratic professionalism, assessing whether the shift away from bureaucratic professionalism occurs when the legislature can serve as a staffing substitute. That is, a more professionalized legislature will have larger staffs that can take on some of the roles outlined above, such as assessment and policy development, lessening the need for bureaucratic professionals. To test this hypothesis, I created a variable *Legislator Salary* that serves as a proxy for legislative professionalism. I supplemented the salary data from Boushey and McGrath (2016) with additional salary data from the *Book of the States*, a reference published annually by the Council of State Governments.¹⁰⁷ These salary values include per diem compensation, which addresses some of the concerns that this measure does not account for session length, another dimension of legislative professionalism.¹⁰⁸ I then adjusted these values for inflation, such that they are in 2010 dollars.¹⁰⁹ I then divided this amount by 10,000, such that coefficient estimates should be interpreted as a unit change for a \$10,000 change in legislative salary. I contend that

Specialist, Preparedness Director (2010) or Preparedness Response Staff (2012), Public Health Dentist (2010) or Oral Health Specialist (2012), and Primary Care Office Director.

¹⁰⁷ This reference is available on the Council of State Governments' website, <http://knowledgecenter.csg.org/kc/category/content-type/content-type/book-states>

¹⁰⁸ My operationalization of legislative professionalism using legislator salary does not fully capture another dimension of professionalism, legislative staff resources.

¹⁰⁹ See Figures B-5, B-6, and B-7 in Appendix B for the distribution of the *Legislator Salary* variable for the years included in the data analyses.

states with more professionalized legislators, represented as those with higher legislative salaries, will have lower levels of bureaucratic professionalism (i.e., a lower share or percentage, or a lower salary paid to the head of the health agency).

The second hypothesis tests the argument that there will be more bureaucratic professionalism in those states with professionalized legislatures when states switch to a divided government condition (i.e., when the legislative and executive branch are no longer controlled by the same party). I created a variable, *Divided Government*, that is coded as “1” if a single party controlled the legislature and the other party controlled the governorship, “0” otherwise.¹¹⁰ The governor party and legislative majority data used to construct this variable was obtained from the *Book of the States*.

The third hypothesis holds that there will be more bureaucratic professionalism in those states with professionalized legislatures where the governor has appointment powers as compared to states without gubernatorial appointment powers. In order to test this hypothesis, I created a dichotomous variable, *Appointment Power* that takes the value of “1” when the governor has the power to appoint the head of a state’s health agency. This variable takes the value of “0” if another entity appoints, such as a cabinet secretary (i.e., if the health department is not cabinet-level) or a Board of Health. I created this variable by using the information available in the *Book of the States*.

ii. Controls

The purpose of this chapter is to better understand how political preferences can shape the amount of bureaucratic professionalism at the state level. However, the preferences of the legislature or the governor are but one factor that has the potential to influence bureaucratic

¹¹⁰ As part of my robustness checks, I describe the results obtained when the state is under unified and “quasi” divided government (see Appendix B, Figure B-9).

composition. Therefore, I control for additional political, state-specific, and exogenous factors that may also affect the dependent variables.

The ideological orientation of the state legislature has the ability to affect bureaucratic professionalism, but the mechanism is a bit different depending on how bureaucratic professionalism is operationalized. Conservative governments tend to have a preference for smaller government, but this would not affect the level of bureaucratic professionalism if measured as a percentage or share. It may, however, affect the salary of the agency head. A smaller department may translate into fewer units managed, and hence, a lesser salary could be offered to the agency head. The other bureaucratic professionalism measures may be affected by the relationship between ideology and belief in science.¹¹¹ If it is the case that a more conservative government is more distrustful of scientific expertise and experts, such as those found within a public health department, these types of legislatures may have a preference for a less professionalized bureaucracy. I control for *Legislative Ideology* by using the state legislature's mean of the two-chamber ideological median (Shor and McCarty, 2011).

I control for three executive administration variables: the partisanship of the governor, the year of the governor's administration, and whether a departmental consolidation took place. While I argue that Republican governors do not necessarily have a different preference for the extent of bureaucratic professionalism, they may have different policy priorities that indirectly have an effect on the dependent variable. I include a trichotomous variable for *Governor Party* that takes the value of "1" for a Republican governor, "-1" for a Democratic governor, and "0" if

¹¹¹ Blank and Shaw (2015) assess the relationship between science-based policy and political ideology by asking registered voters whether elected officials and policy-makers should defer to scientific experts on a range of topics (e.g., stem cell research, global warming, mandatory vaccination). They find that people want less deferential policy leaders when scientific recommendations are at odds with their political ideology. Additionally, a Pew survey found that 51% of politically conservative respondents believed that global warming was occurring in comparison to 88% of liberal respondents (Pew Research Center, 2015).

the governor is neither a Republican nor a Democrat. As mentioned previously, governors have increasingly become policy leaders, a factor that Beyle attributes in part to the growing gubernatorial term length and number of terms (1988). Thus, it may take governors a few years to increase the capacity of the executive branch, which may also influence bureaucratic professionalism. To control for this effect, I include the counter variable, *Year Governor Term*, which simply takes the value of the number of years the governor has been in office. Governors have the ability to increase their control over the executive branch through reorganization and consolidation (Beyle, 1988). Additionally, Moe (1985a) notes that at the federal level, presidents may use centralization as a strategy to control the bureaucracy.¹¹² I created *Department Consolidation* by using state public health department configuration data from Lantz *et al.* (2013). This variable is coded as “1” if one or more functions (i.e., public health, Medicaid, mental health, or human services) were combined, “0” if no changes were made, and “-1” if one or more functions were separated in the past three years.¹¹³

I also control for state-specific resource factors that may affect bureaucratic professionalism, namely budget spending and staffing.¹¹⁴ The amount states spend on their citizens' health may change, which is captured by the variable, *Health Spending Per 100,000* (i.e., per 100,000 population) in units of \$1,000 and in 2010 dollars. An increase in health spending may indicate the emergence of a new public health threat, such as bioterrorism or an emerging infectious disease. Or, a decrease in health spending may be the result of an economic

¹¹² There is also a literature within organizational studies that examines how departmental unit size affects unit functioning in terms of information handling, managerial oversight, and decision-making speed (for a review, see Rajagopalan, Rasheed, and Datta, 1993).

¹¹³ 18 states changed their configuration between 1990 and 2014. If departments were reconfigured but the total number of departments remained the same, reconfiguration was coded based on the perspective of public health or Medicaid (e.g., Colorado's mid-1990s reconfiguration maintained the same number of entities but was recorded as a “-1” because Medicaid became a standalone department).

¹¹⁴ I did not include a variable indicating whether a state has a board of health because most state boards do not have control over personnel matters (Hughes *et al.*, 2011).

downturn. This may lower agency head salaries or lead to a shift in the composition of health departments. In turn, the budget may be spent on different line items other than staff, or funding may shift due to a hiring freeze that has the potential to change the composition of the health department. This is controlled for by the variable *Staff Per 10,000* (i.e., per 10,000 population). For example, funding related to an emerging disease threat may be spent on a combination of additional staff, supplies such as stockpiling vaccines, or both. Thus, it is important to control for both budgetary and staffing changes in order to isolate the effects of interest.

Finally, there are additional reasons for variation in bureaucratic professionalism not encompassed in the above controls. The federal government may provide different levels of Medicaid funding to a state based on either federal or state-level changes. I used data from the National Association of State Budget Officers (NASBO) to calculate the *Federal Medicaid Expenditures* in units of \$100,000 and in 2010 dollars. A state may be confronted by an aging workforce that leads to larger-than-normal turnover in positions. I assume that the state government workforce age is reflective of the age of the state population in general and obtained the percentage of the state population that is 65 years of age or over, represented by the variable *Percent 65+*. Lastly, population needs may shift based on the percentage of state residents living in poverty that are not reflected in federal Medicaid outlays to the states, particularly in the years prior to the *Affordable Care Act*. Therefore, I include a variable, *Percent Below FPL*, to control for these effects.

Descriptive statistics for the above dependent and independent variables are found in the Appendices (see Tables B-1 and B-2).¹¹⁵

¹¹⁵ Independent variables are somewhat to at most moderately correlated (i.e., $|r| \leq 0.4$). Correlation tables are available by request.

III. Empirics

I estimate a series of models to examine the factors that contribute to bureaucratic professionalism in a given state and year. As my data are structured as a panel with state-years as the unit of analysis, I include year dummy variables to address the potential of serial autocorrelation. And, I include state dummy variables to address the issue of correlated errors within and across states. I estimate the following three equations employing ordinary least squares (OLS) for each of the four dependent variables:

$$(1) \quad y_{it} = \beta_0 + \beta_1 \text{Legislative Salary}_{it} + \beta_2 \text{Appointment Power}_{it} + \beta_3 \text{Divided Government}_{it} \\ + \beta_4 \text{Political Controls}_{it} + \beta_5 \text{Additional Controls}_{it} + \text{State}_i + \text{Year}_t + \varepsilon_{it}$$

$$(2) \quad y_{it} = \beta_0 + \beta_1 \text{Legislative Salary}_{it} + \beta_2 \text{Appointment Power}_{it} + \beta_3 \text{Divided Government}_{it} \\ + \beta_4 \text{Legislative Salary}_{it} * \text{Divided Government} + \beta_5 \text{Political Controls}_{it} \\ + \beta_6 \text{Additional Controls}_{it} + \text{State}_i + \text{Year}_t + \varepsilon_{it}$$

$$(3) \quad y_{it} = \beta_0 + \beta_1 \text{Legislative Salary}_{it} + \beta_2 \text{Appointment Power}_{it} + \beta_3 \text{Divided Government}_{it} \\ + \beta_4 \text{Appointment Power}_{it} * \text{Divided Government} + \beta_5 \text{Political Controls}_{it} \\ + \beta_6 \text{Additional Controls}_{it} + \text{State}_i + \text{Year}_t + \varepsilon_{it}$$

To note exceptions to this functional form, Hausman tests indicated that random effects were appropriate ($p > 0.05$) for the models of the *Share of Health Professionals* and *Percent Non-Clerical Employees* models, as well as models 1 and 3 of *Percent Public Health Professional Staff*.¹¹⁶ Additionally, I performed Breusch-Pagan tests to assess the possibility of

¹¹⁶ Additionally, I was not able to use the Hausman test on some of the full models because the variance-covariance matrix was not positive definite. In these instances, I used a Hausman test on the base models (i.e., models without the control variables) to determine whether fixed or random effects were appropriate.

heteroskedasticity and found that this was a concern in all models except for *Percent Public Health Employees*, models 1 and 3. I employ robust standard errors in those models that yielded large test statistics (i.e., associated with p values below 0.05). These specifications are noted in the results table in the following section.

IV. Results

Overall, I find limited support for my hypotheses. This support is inconsistent across the different operationalizations of the dependent variable. I present my results by dependent variable below.

A. Dependent Variable: Salary of the Health Agency Head

When examining bureaucratic professionalism measured as *Agency Head Salary*, I find a lack of support for hypotheses 1 and 2, and results that contradict hypothesis 3. See Table 3-2 for the results of the models. In the first model, the coefficient on *Legislative Salary* is not significant, indicating it does not have a direct impact on bureaucratic professionalism when measured as the salary of the agency head. It is also noteworthy that the sign on the coefficient is positive (i.e., opposite the hypothesized direction). In the results from the second model, the marginal effect of *Divided Government* is not significant across all levels of *Legislator Salary* (refer to Figure 3-3). This indicates a lack of support for hypotheses 1 and 2.¹¹⁷ In the third model, the marginal effect of *Appointment Power* is negative and significant at higher levels of *Legislator Salary*, indicating a conditional effect that is again opposite the direction of hypothesis 3 (refer to Figure 3-4). However, the results are significant in a region where there are a limited number of observations (i.e., less than 15% of the sample corresponds to these values

¹¹⁷ I further examined model 2 to determine whether hypothesis 1 was supported by plotting the marginal effect of legislative salary across the two values of divided government. However, the results were not statistically significant.

for *Legislator Salary*).¹¹⁸ Model 3 also does not support hypothesis 1, as the marginal effect of an increase in legislative salary is either opposite the hypothesized direction (when the governor does not have appointment power, $p < 0.10$) or not statistically significant (when the governor does have appointment power). These are the only models in which *Governor Party* is significant, where the presence of a Republican governor leads to a decrease in *Agency Head Salary* ($p < 0.01$). Finally, an increase in *Health Budget Per 100,000* is also associated with an increase in *Agency Head Salary* ($p < 0.01$). This is perhaps unsurprising, as an across-the-board increase would likely affect both the department and its executive.

¹¹⁸ The Hausman test's variance-covariance matrix for *Agency Head Salary*, models 1-3 was not positive definite for either the full, which indicated fixed effects, or the base model, which indicated random effects. Thus, I also estimated the models with random effects, although this did not affect the magnitude or significance of the results.

Table 3-2. Effects of State-Level Characteristics on Bureaucratic Professionalism (Salary of the Health Agency Head)

| | Agency Head Salary (1) | Agency Head Salary (2) | Agency Head Salary (3) |
|---|---------------------------|---------------------------|---------------------------|
| Legislator Salary (per \$10,000) | 203.41 (1077.00) | 388.90 (1117.59) | 3678.30* (1963.45) |
| Appointment Power | 1303.81 (4034.36) | 1267.97 (4041.55) | 13194.88** (6235.13) |
| Divided Government | 871.79 (1914.86) | 2680.00 (3286.54) | 784.50 (1921.47) |
| Legislator Salary x Divided Government | | -496.02 (558.21) | |
| Legislator Salary x Appointment Power | | | -5152.41** (2167.29) |
| Legislature Ideology | 390.71 (2782.81) | 352.00 (2774.65) | 277.74 (2820.47) |
| Governor Party | -3203.45*** (1028.67) | -3133.52*** (1028.67) | -3236.36*** 1023.25 |
| Year Governor Administration | 65.95 (299.18) | 53.1 (300.92) | 79.61 (299.98) |
| Department Consolidation | 429.77 (3965.49) | 375.61 (3997.89) | 524.22 (4000.98) |
| Health Budget Per 100,000 | 478.10*** (144.16) | 474.11*** (143.84) | 467.34*** (149.95) |
| Health Staff Per 10,000 | 506.64 (351.18) | 497.01 (349.05) | 538.42 (348.30) |
| Federal Medicaid Expenditures | -434.01 (1313.03) | -467.09 (1320.36) | -548.15 (1346.05) |
| Percent 65 and Older | -965.35 (1033.74) | -947.11 (1034.54) | -1152.95 (1030.33) |
| Percent Below FPL | -820.87 (601.18) | -839.66 (600.49) | -920.42 (607.86) |
| Constant | 140000*** (17746) | 140000*** (17746) | 140000*** (17895) |
| N | 769 | 769 | 769 |
| Effects Employed | fixed | fixed | fixed |

Each column is a separate OLS regression and the unit of analysis is state-year. Robust standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.10

Figure 3-3. Agency Head Salary (Hypothesis 2)

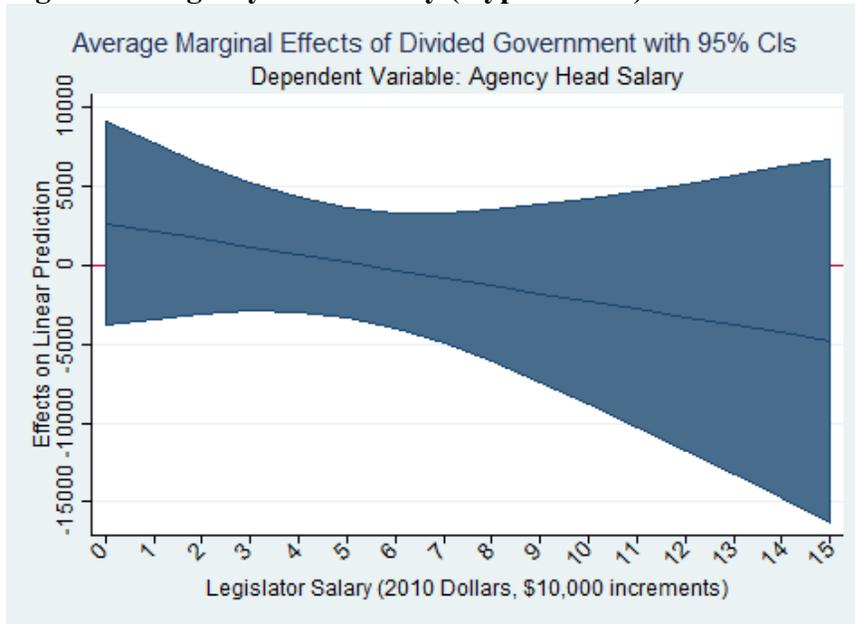
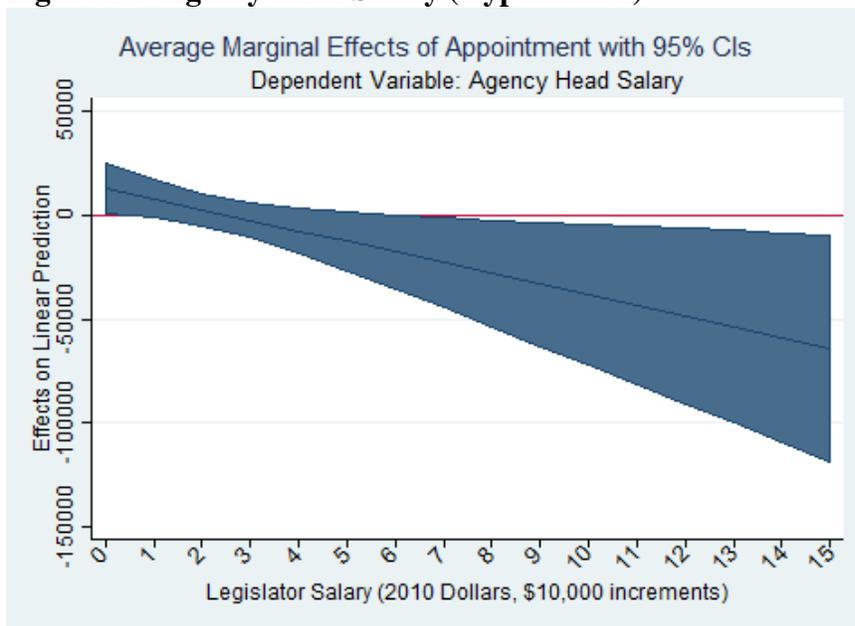


Figure 3-4. Agency Head Salary (Hypothesis 3)



B. Dependent Variable: Share of Health Professionals

Turning to the “bottom up” approach of operationalizing bureaucratic professionalism, again none of the hypotheses are supported. Table 3-3 provides the regression results. In model 1, the coefficient on *Legislator Salary* is not significant. The statistically significant coefficient

on the interaction term *Legislator Salary x Divided Government* indicates it contributes to the model, but the plot of the marginal effects of *Divided Government* (Figure 3-5) indicates that the effect is not statistically different from zero ($p < 0.05$). And, like the *Agency Head Salary* model, the trend is negative and counter to what was predicted. Thus, model 2 indicates a lack of support for hypothesis 2. After plotting the marginal effects of *Legislator Salary*, the results indicate that model 2 also does not support hypothesis 1. The effect of appointment powers on the *Share of Health Professionals* is not conditioned by increases in legislative professionalism (Figure 3-6): while the trend is positive, it is not significant. Further, a plot of the marginal effect of legislator salary across the values of appointment power indicates that we fail to reject the null hypothesis for hypothesis 1.

I also examined how the control variables affected the *Share of Health Professionals* in state government. This is the only model in which the effect of *Department Consolidation* is significant, where the creation of a larger department has a positive effect on bureaucratic professionalism. This intuitively makes sense, as departmental consolidation likely condenses non-program staff while retaining more specialized personnel. Lastly, the percent of citizens living below the poverty line has a positive and statistically significant effect on bureaucratic professionalism, all else equal. If we assume that health departments in these states play a greater role, either in terms of directly providing care or in organizing or contracting for these services at the local level, it would follow that a higher concentration of doctors, nurses, and other medical personnel within the state government would be needed.

Table 3-3. Effects of State-Level Characteristics on Bureaucratic Professionalism (Share of Health Professionals in State Government)

| | Share of Health Professionals (1) | Share of Health Professionals (2) | Share of Health Professionals (3) |
|---|--------------------------------------|--------------------------------------|--------------------------------------|
| Legislator Salary (per \$10,000) | 0.02 (0.06) | 0.06 (0.07) | -0.03 (0.10) |
| Appointment Power | -0.05 (0.28) | -0.06 (0.28) | -0.22 (0.51) |
| Divided Government | -0.01 (0.22) | 0.38 (0.35) | -0.01 (0.22) |
| Legislator Salary x Divided Government | | -0.11* (0.07) | |
| Legislator Salary x Appointment Power | | | 0.06 (0.11) |
| Legislature Ideology | -0.25 (0.25) | -0.25 (0.25) | -0.24 (0.25) |
| Governor Party | -0.07 (0.11) | -0.06 (0.12) | -0.07 (0.12) |
| Year Governor Administration | 0.03 (0.03) | 0.02 (0.03) | 0.03 (0.03) |
| Department Consolidation | 0.67* (0.38) | 0.65* (0.37) | 0.67* (0.38) |
| Health Budget Per 100,000 | -0.01 (0.02) | -0.01 (0.02) | -0.01 (0.02) |
| Health Staff Per 10,000 | 0.01 (0.03) | 0.01 (0.03) | 0.01 (0.03) |
| Federal Medicaid Expenditures | -0.04 (0.03) | -0.04 (0.03) | -0.04 (0.03) |
| Percent 65 and Older | 0.01 (0.09) | 0.01 (0.09) | 0.01 (0.09) |
| Percent Below FPL | 0.13** (0.05) | 0.13** (0.05) | 0.13* (0.05) |
| Constant | 2.09 (1.59) | 2.00 (1.17) | 2.21 (1.61) |
| N | 786 | 786 | 786 |
| Effects Employed | random | random | random |

Each column is a separate OLS regression and the unit of analysis is state-year. Robust standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.10

Figure 3-5. Share of Health Professionals (Hypothesis 2)

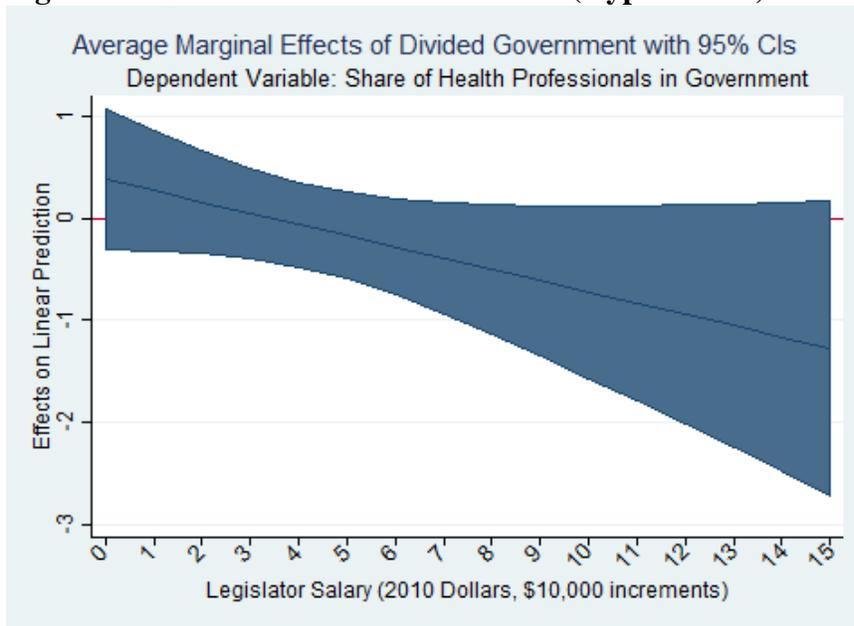
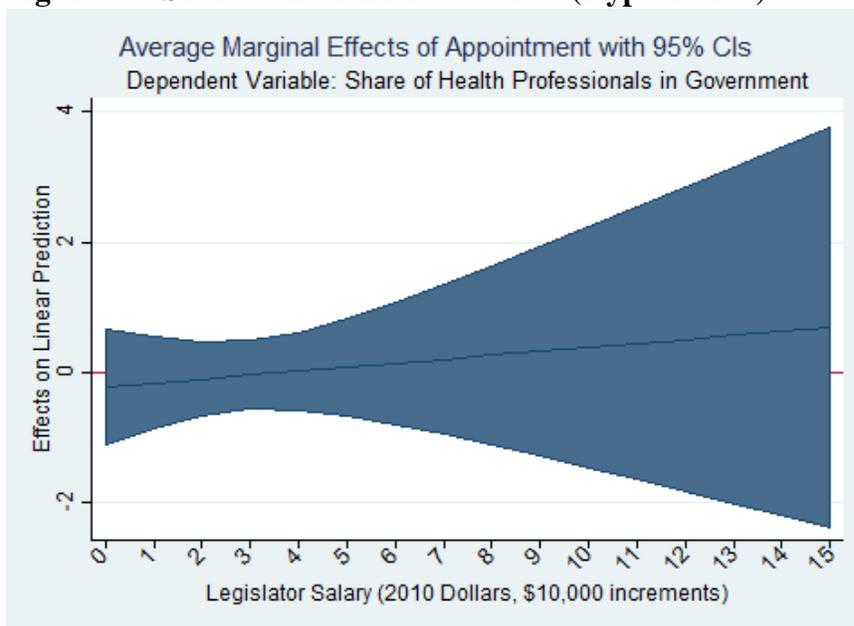


Figure 3-6. Share of Health Professionals (Hypothesis 3)



Finally, I turn to the capability-based approach to measuring bureaucratic professionalism.

C. Dependent Variable: Percent Non-Clerical Employees

While the models estimated using the final two dependent variables offer some support for my hypotheses, the dataset is more limited in size than that used for the prior two dependent

variables: there are a total of 58 state-years represented.¹¹⁹ Table 3-4 provides the model results for the *Percent Non-Clerical Employees* within a state health department. Model 1 indicates that my first hypothesis may be supported. The coefficient on *Legislator Salary* is negative and significant ($p < 0.01$), although the magnitude of the coefficients is small in comparison to that of the sample (*Percent Non-Clerical Employees* mean = 79.2; s.d. = 9.92).¹²⁰ Model 2 offers support for my second hypothesis. As Figure 3-7 shows, the marginal effect becomes less negative at lower levels of legislative professionalism, although the magnitude is small. For example, a decrease of 3.98 percentage points ($p < 0.05$) is observed at the mean value of *Legislator Salary* in comparison to a decrease of 3.90 percentage points ($p < 0.05$) at one standard deviation above the mean (see Figure B-6 in the Appendices for a distribution of *Legislator Salary*). Additionally, a plot of the marginal effects of *Legislator Salary* across *Divided Government* indicates that increases in legislative salary have a negative and statistically significant ($p < 0.10$) effect on the *Percent Non-Clerical Employees* in a health agency. This indicates that we can reject the null for hypothesis 1. Turning to model 3, the marginal effect of appointment power is in the hypothesized direction but is not statistically significant (Figure 3-8). Additionally, the marginal effect of *Legislator Salary* is in the predicted direction and statistically significant when the governor has appointment power ($p < 0.10$). However, it is not statistically significant when the governor does not have appointment power. Thus, hypothesis 3 is not supported in model 3, while hypothesis 1 is weakly supported.

¹¹⁹ There are 43 observations in 2010 and 41 observations in 2012, for a total of 84 observations. Certain models are limited further by missing values, in particular legislature ideology.

¹²⁰ The results would become more pronounced if we altered the scale to assess a \$100,000 increase in legislator salary, looking at the differences between those state legislatures that are among the least and most professionalized based on *Legislator Salary*. All else equal, a \$100,000 increase would yield a 12 percentage point decrease in non-clerical public health staff. In addition to having a direct effect, model 2 indicates that the effect of *Legislator Salary* on bureaucratic professionalism is also conditioned by *Divided Government*.

Turning to the control variables, *Health Budget Per 100,000*, *Percent Below FPL*, and *Federal Medicaid Expenditures* have a negative effect on bureaucratic professionalism as measured by *Percent Non-Clerical Employees*.¹²¹ In contrast, the size of the health department, as measured by *Health Staff Per 10,000*, has a positive effect on bureaucratic professionalism.

¹²¹ This would seem to be at-odds with my above claim that the *Share of Health Professionals* is positively associated with *Percent Below FPL*. However, recall that *Percent Non-Clerical Employees* refers specifically to the health department, whereas *Share of Health Professionals* refers to the whole state government. Other sectors, such as Education and Human Services, may be contributing to the increasing share of health professionals in response to high-need populations; this effect would not be observed if we focused on the health department alone.

Table 3-4. Effects of State-Level Characteristics on Bureaucratic Professionalism (Percent Non-Clerical Employees)

| | Percent Non-Clerical Employees (1) | Percent Non-Clerical Employees (2) | Percent Non-Clerical Employees (3) |
|---|--|--|--|
| Legislator Salary (per \$10,000) | -1.19*** (0.43) | -1.21*** (0.43) | -1.64 (1.01) |
| Appointment Power | 2.71 (3.17) | 2.74 (3.22) | 0.08 (5.84) |
| Divided Government | -4.10** (1.64) | -4.09** (1.86) | -4.81 *** (1.72) |
| Legislator Salary x Divided Government | | 0.03 (0.17) | |
| Legislator Salary x Appointment Power | | | 0.79 (1.15) |
| Legislature Ideology | 3.84** (1.76) | 3.69** (1.77) | 5.06 *** (1.89) |
| Governor Party | 0.09 (0.44) | 0.04 (0.53) | 0.23 (0.45) |
| Year Governor Administration | 0.35 (0.28) | 0.34 (0.29) | 0.39 (0.27) |
| Department Consolidation | -0.34 (4.10) | -0.32 (4.18) | -0.33 (3.76) |
| Health Budget Per 100,000 | -0.23* (0.14) | -0.24* (0.14) | -0.18 (0.12) |
| Health Staff Per 10,000 | 0.75* (0.39) | 0.76* (0.40) | 0.68 (0.43) |
| Medicaid Expenditures | -0.34** (0.17) | -0.34** (0.17) | -0.30 * (0.17) |
| Percent 65 and Older | 0.13 (0.74) | 0.10 (0.74) | 0.26 (0.80) |
| Percent Below FPL | -1.36*** (0.48) | -1.37*** (0.48) | -1.29 *** (0.47) |
| Constant | 95.69*** (12.72) | 96.26*** (12.82) | 93.30 *** 14.80 |
| N | 58 | 58 | 58 |
| Effects Employed | random | random | random |

Each column is a separate OLS regression. Unit of analysis is state-year. Robust standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.10

Figure 3-7. Percent Non-Clerical Employees (Hypothesis 2)

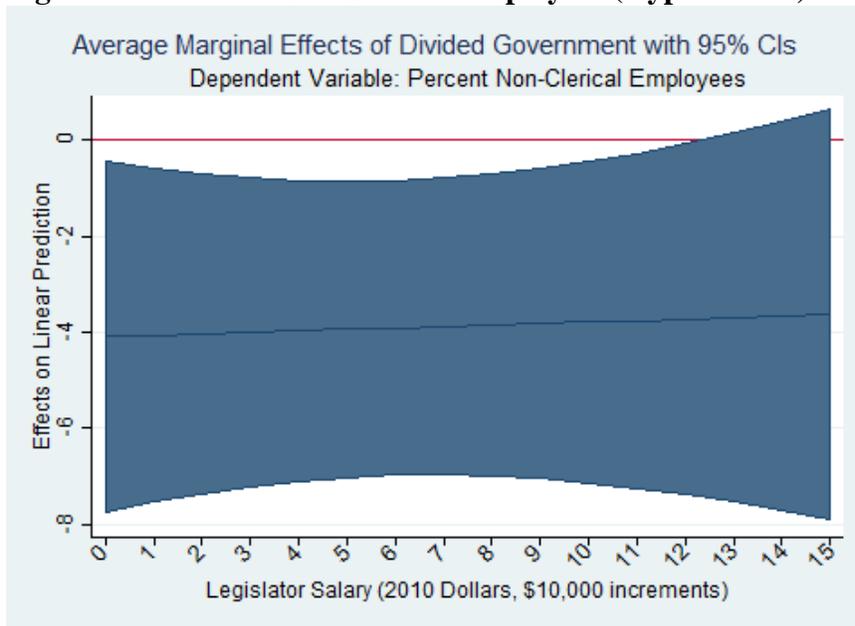
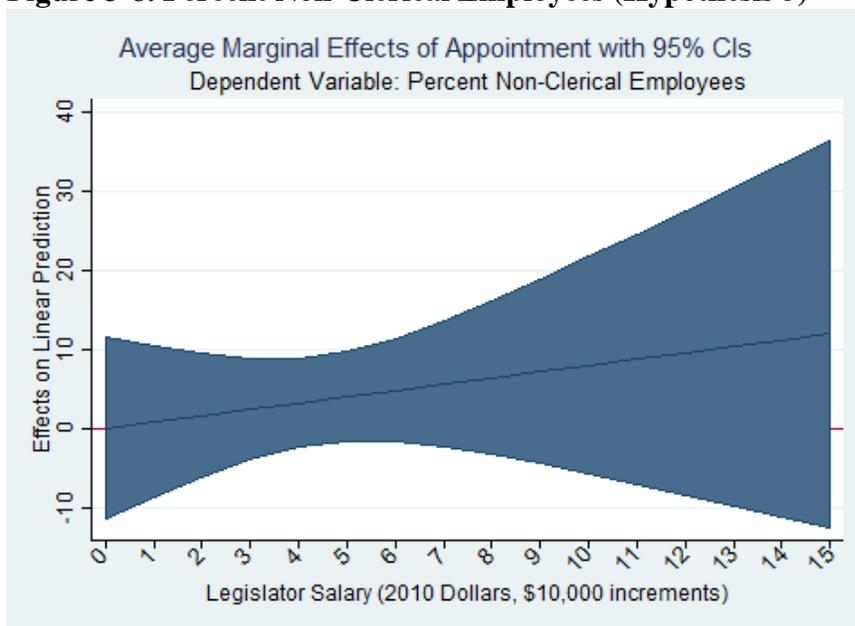


Figure 3-8. Percent Non-Clerical Employees (Hypothesis 3)



D. Dependent Variable: Percent Public Health Professional Staff

Again, the sample size is smaller than that of two of the other dependent variable measures (i.e., *Agency Head Salary* and *Share of Health Professionals*). Table 3-5 provides the model results. In model 1, the coefficient on *Legislative Salary* is not significant and positive,

which is opposite my theoretical expectations. In model 2, the coefficient on the interaction term, *Legislature Salary x Divided Government* is significant, and the marginal effects are statistically significant and in the hypothesized direction, providing support for hypothesis 2. As shown in Figure 3-9, the marginal effect of *Divided Government* on bureaucratic professionalism is positive and significant at increasing levels of *Legislator Salary*, with the exception of state-years with very low levels of legislative professionalism.¹²² The effect increases over greater levels of legislative professionalism and is larger than that observed for *Percent Non-Clerical Employees*. For example, an increase of 26.1 percentage points ($p < 0.05$) is observed at the mean value of *Legislator Salary* in comparison to an increase of 39.0 percentage points ($p < 0.001$) at one standard deviation above the mean. ($p < 0.05$). This is a sizable change, given that the mean *Percent Public Health Professionals* is 46.2 (s.d.=17.1). A distribution of *Legislator Salary* appears in Figure B-7 in the Appendices. I also assessed hypothesis 1 using my model 2 results by plotting the marginal effects of *Legislator Salary* for the different values of *Divided Government*. The results were not statistically significant. In model 3, we see that the marginal effect is opposite the hypothesized direction and is at no point statistically significant (Figure 3-10). Again, I assessed hypothesis 1 using model 3 and plotting the marginal effects of *Legislator Salary*; from this, we fail to reject the null hypothesis.

¹²² The Hausman test's variance-covariance matrix for *Percent Public Health Professionals* (models 1 and 3) was not positive definite for either the full, which indicated random effects, or the base model, which indicated fixed effects. I re-estimated these models using fixed effects. While the results differed in magnitude, they did not differ in terms of statistical significance for the key independent variables. Additionally, a Hausman test was not possible for the full model 2 because it failed to meet asymptotic assumptions for the test. The base model indicates that fixed effects are appropriate, although the variance-covariance matrix is not positive definite. I re-estimated this model using random effects. Again, while the results differed in magnitude, they did not differ in terms of statistical significance for the key independent variables

Table 3-5. Effects of State-Level Characteristics on Bureaucratic Professionalism (Percent Public Health Professionals)

| | Percent Public Health Professionals + (1) | Percent Public Health Professionals (2) | Percent Public Health Professionals + (3) |
|---|---|--|---|
| Legislator Salary (per \$10,000) | 1.05 (1.13) | -5.66 (5.44) | 3.42 (2.20) |
| Appointment Power | -2.45 (4.82) | -105.55 (145.12) | 6.45 (7.82) |
| Divided Government | 8.27 (6.16) | 8.41 (14.77) | 8.27 (6.22) |
| Legislator Salary x Divided Government | | 4.99** (2.05) | |
| Legislature Salary x Appointment Power | | | -2.90 (2.13) |
| Legislature Ideology | 1.06 (3.80) | -6.37 (13.05) | 0.25 (4.01) |
| Governor Party | 1.40 (2.90) | -3.45 (6.97) | 0.98 (3.07) |
| Year Governor Administration | 0.01 (0.91) | -1.72 (1.99) | 0.05 (0.91) |
| Department Consolidation | 1.03 (6.85) | 27.95 (41.47) | 1.51 (6.73) |
| Health Budget Per 100,000 | -0.35 (0.34) | 0.51 (1.35) | -0.42 (0.36) |
| Health Staff Per 10,000 | 0.86 (1.00) | 0.52 (11.58) | 0.76 (0.98) |
| Medicaid Expenditures | 0.16 (0.40) | 13.29 (21.43) | 0.18 (0.39) |
| Percent 65 and Older | 1.47 (1.31) | -9.68 (50.46) | 1.71 (1.33) |
| Percent Below FPL | -0.88 (0.76) | -3.23 (7.42) | -0.73 (0.80) |
| Constant | 34.30 (21.99) | 264.50 (694.38) | 24.40 (24.61) |
| N Effects Employed | 60 random | 60 fixed | 60 random |

Each column is a separate OLS regression. Unit of analysis is state-year. *Denotes that robust standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.10

Figure 3-9. Percent Public Health Employees (Hypothesis 2)

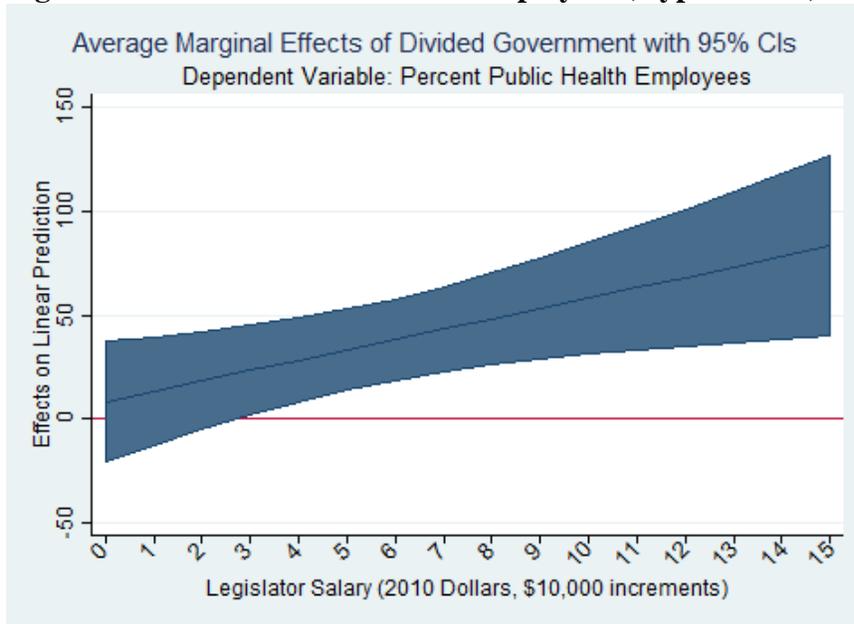
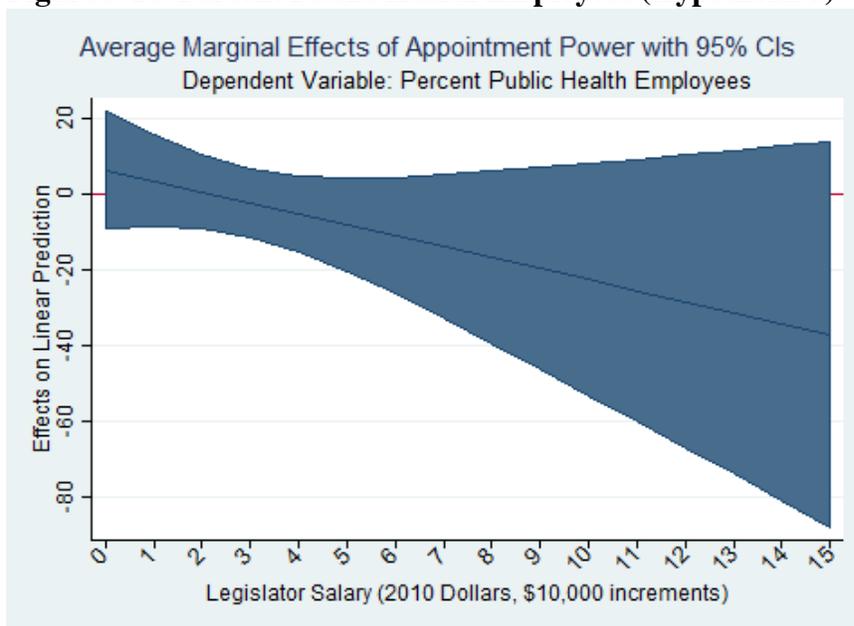


Figure 3-10. Percent Public Health Employees (Hypothesis 3)



In sum, I found some support, albeit limited and inconsistent, for my first two hypotheses, and no support for my third hypothesis. Of the models estimated to test hypothesis 1, I was able to reject the null in three of them (i.e., *Percent Non-Clerical Employees* models 1 and 2; model 3 depended on whether or not the governor had appointment power). Hypothesis 2 was

supported by the models estimating *Percent Non-Clerical Employees* and *Percent Public Health Professionals*. Finally, Hypothesis 3 was not supported in any of the models and, in the *Agency Head Salary* model, the result was statistically significant and opposite the predicted direction.

Why is there a lack of consistent support for my hypotheses? First, my theory may oversimplify the process by which professionals are put into place (and choose to stay in place). While I am interested in examining how principal preferences shape the bureaucracy, certain features make the bureaucracy less responsive to these preferences. For example, state civil service protections may make it challenging to remove employees from their positions. Further, revolving door laws, in which post-government job opportunities are restricted, may lessen the incentives for employees to traverse between the public and private sector. Second, I am not properly accounting for the principals' abilities to shape the bureaucracy even in my simplified theory (Beyle and Ferguson, 2008). Namely, governors may possess additional institutional powers to influence bureaucratic composition. In particular, the governor may be able to wield budgetary powers in order to affect the bureaucracy and veto powers to indirectly affect the bureaucracy through bargaining.¹²³

E. Robustness Checks

I conducted two types of robustness checks on the models above that initially yielded support for my hypotheses (i.e., *Percent Non-Clerical Employees* models 1, 2, and 3, and *Percent Public Employees* model 2). First, I explore whether my model 2 results are robust to alternative definitions of divided government by broadening the definition to any form of divided government (in contrast to unified government), as well as parsing out the differences between

¹²³ Beyle and Ferguson (2008) also describe additional institutional powers that I do not consider here. First, I do not address tenure potential because I control for the number of years a governor is in office (i.e., realized potential to affect bureaucratic composition). Second, I account for party control through the *Divided Government* variable. Third, I do not consider whether other government officials are elected because the head of the health department is not elected in any state.

unified government and two types of divided government. Second, I examine whether my models are sensitive to alternative specifications by estimating fixed effects models for those models that were originally estimated with random effects.¹²⁴

The definition I used for divided government, where a governor of one party faces a legislature of another, differs from how other scholars have defined the term. Prior work has examined the effect of unified government, where the governor and legislature are both of the same party, and compared this to divided government, which is defined simply as a government that is not unified (for recent examples, see Lillvis and McGrath, 2017 and Boehmke and Shipan, 2015). I believe that my definition is justified because it captures the unique situation in which the executive branch cannot rely on co-partisan expertise from either legislative house, and therefore enables me to test the effects of increasing the extent of legislative professionalism conditional on governing regime. However, it may also be the case that governors de-escalate the arms race during periods of unified government. Therefore, I re-estimated model 2 substituting unified government for divided government.

Do the results for hypotheses 1 and 2 change when alternative definitions of divided government are employed? I first examine the results from the perspective of unified government (i.e., where state-years in which both the governor and the legislature are of the same party are in one category, and all other state-years are in another). Recall that hypothesis 1 states that as legislative professionalism increases, bureaucratic professionalism should decrease. Therefore, a negative and statistically significant result would indicate that we can reject the null hypothesis. I plotted the marginal effect of *Legislator Salary* across the values for unified government to see

¹²⁴ Serial autocorrelation may be a problem in the Agency Head Salary and Share of Health Professionals models. However, I do not test for serial autocorrelation here because the results of these models were not significant. As I only have two non-consecutive years' worth of values for *Percent Non-Clerical Employees* and *Percent Public Health Professionals*, I do not employ this specification test for these models.

how *Percent Non-Clerical Employees* changes. Again, I found that the effect on *Percent Non-Clerical Employees* is negative and statistically significant ($p < 0.05$). Turning to hypothesis 2, the general trends are preserved when examining the marginal effect of *Unified Government* on bureaucratic professionalism for varying levels of *Legislator Salary* (see Figure B-8 in Appendix B). Note that I am examining governmental regimes from a different perspective, such that we would expect a positive trend with the *Divided Government* condition to be comparable to a negative trend when examining *Unified Government*. When *Percent Non-Clerical Employees* is the dependent variable, the marginal effect of *Unified Government* is significant and trends negative, but significance is restricted to legislator salaries of \$20,000 or less ($p < 0.05$). Again, the magnitude of the change is quite small (around 3 percentage points or less). When *Percent Public Health Professionals* is the dependent variable, the marginal effect of *Unified Government* is significant at *Legislator Salary* levels of \$30,000 or more ($p < 0.05$). It is also a sizeable effect: at \$30,000 and \$60,000, it has a negative effect of about 18 and 28 percentage points, respectively.

Both definitions of what it means to be unified or divided ignore the potential role of a “quasi-divided” government, where one chamber has a legislative majority and is the same party of the party of the governor. One might imagine that one chamber may be able to offer enough assistance to substitute for bureaucratic professionalism, for example. I created a trichotomous variable to examine differences in those instances in which a governor has a co-partisan majority in both chambers, one chamber, or neither chambers.

Using this variable, I examined hypothesis 1, which would be supported by negative, statistically significant values for *Percent Non-Clerical Employees* regardless of regime type. The marginal effects of *Legislator Salary* on *Percent Non-Clerical Employees* are negative and

statistically significant under unified and pure divided government regimes ($p < 0.05$). However, the marginal effects are not statistically significant under a quasi-divided regime.

I then examined hypothesis 2 using this trichotomous variable. Based on my hypothesis, we would have expected to see a positive trend for the quasi-divided government regime, and a more positive (steeper slope) trend for the pure divided government regime. However, once again, the results rely on the dependent variable used (see Appendix B, Figure B-9). Comparing the results of moving from a unified to pure divided government scenario, results were in the hypothesized direction and significant for the model of *Percent Public Health Professionals* (*Legislator Salary* values at \$40,000 and above, $p < 0.05$). While in the hypothesized direction, the effects on *Percent Non-Clerical Employees* were not statistically significant. Further, when comparing the marginal effects of moving from a unified to quasi-divided scenario, the results are opposite the hypothesized direction in the *Percent Public Health Professionals* model and statistically insignificant in the *Percent Non-Clerical Employees* model. Future research may parse these differences further, for example examining the effect of quasi-divided government based on whether the upper or lower chamber is in partisan agreement with the governor.

Second, I re-estimated the models that employed random effects because of how I am measuring my *Legislator Salary* variable. As one might imagine, cost of living varies across states, such that the same salary might be worth much more in one state than another. Boushey and McGrath note that, in addition to expertise and cost of living, salary also reflects varying labor markets in the state, as well as market distortion more generally (2016). They do not adjust for these factors and explain that state fixed effects helps capture these unaccounted-for variables. Thus, although statistical tests reveal that random effects are appropriate for certain models, they are only appropriate in the absence of omitted variables. Therefore, I re-estimate

the following models using fixed effects to help address cost of living and the other factors listed above: *Percent Non-Clerical Employees* models 1, 2, and 3. These models are presented in table 3 in Appendix B. Unfortunately, all statistically significant results lose their significance once fixed effects are employed. Evaluating hypothesis 1, the coefficient on *Legislator Salary* loses significance in model 1, and the marginal effects of *Legislator Salary* are also no longer significant in models 2 and 3. Similarly, when evaluating hypothesis 2, the marginal effect of switching to divided government at higher levels of legislative professionalism is also no longer significant. This indicates that the results for the *Percent Non-Clerical Employees* presented above are sensitive to the choice of fixed or random effects.

V. Discussion

Available data on the state health department workforce indicates that it is prone to drastic changes from year to year (Beck and Boulton, 2015). For example, California reported a 45 percentage point decline in public health professionals based on departmental responses to the ASTHO 2010 and 2012 surveys. In contrast, Kansas reported a 20 percentage point increase. Additionally, Census data shows that the percentage of state government employees who are health professionals can also vary from year to year across most of the states.

This chapter aimed to provide some insights as to why the extent of bureaucratic professionalism varies across states and over time. However, my hypotheses have limited empirical support that is inconsistent across dependent variables. First, there appears to be some support for the hypothesis that bureaucratic professionalism decreases as legislative professionalism increases. Yet, these results should be interpreted with caution: we can reject the null only when *Percent Non-Clerical Employees* was the dependent variable and the results were

not significant once fixed effects were employed. Second, there is also limited support for the hypothesis that the effect of increases in legislative salary on bureaucratic professionalism is conditioned by divided government. This was shown only in the *Percent Public Health Professionals* and *Percent Non-Clerical Employees* models. Again, if I employ fixed effects in the *Percent Non-Clerical Employees* model, the findings are no longer significant. The models of *Agency Head Salary* and *Share of Health Professionals* pointed in the opposite direction, although these results were not significant. Third, there is no support for the hypothesis that, as legislative professionalism increases and in the presence of gubernatorial appointment power, bureaucratic professionalism increases. In fact, results with *Agency Head Salary* as the dependent variable were statistically significant and in the opposite direction. Based on these results, it appears that support for my theory is weak. That is, the bureaucratic professionalism of state health agencies is not overtly manipulated by political principals.

This study has some limitations. As noted previously, I conceptualized bureaucratic professionalism as multidimensional. Yet, my measures more closely approximate expertise and are not completely capturing information-sharing, networks, or self-regulation. There are also a couple of alternative explanations which future work can assess. First, some may suggest that states with stronger physician interest groups will push for the inclusion of more health professionals in state government. Corporate practice of medicine laws can be used to isolate these effects, as they (in theory) protect physician autonomy in a state by prohibiting non-licensed professionals from employing physicians; states vary in the extent to which they protect physician interests in this manner (Lammers, 2013). However, this measure does not vary much over time; the inclusion of fixed effects should mitigate concerns about omitted variable bias. Second, governors may enlarge their office to provide policy leadership (Beyle and Ferguson,

2008). Thus, bureaucratic professionalism may matter less in states where the governor has such experts in his or her office that can offset the policy capacity of a professionalized legislature.

Additionally, this study provides insights about measures of bureaucratic professionalism in state health departments. These measures appear distinct: the effects of legislative professionalism, divided government, and appointment power vary depending on the measure. As they are not substitutes for one another, the choice of measure depends on the research question. As we will see in Chapter 4, if the dependent variable spans state agencies, it is best to use a measure that encompasses more than one agency (i.e., *Share of Health Professionals*). Further, in Chapter 4, I theorize that immunization rulemaking is conditioned by the response of bureaucratic professionals to their political environment. The causal relationship would be more difficult to disentangle if divided government both brought about a certain level of bureaucratic professionalism *and* modified the effects of bureaucratic professionalism. Specifically, this alleviates concerns about endogeneity, which would occur if divided government had an effect on bureaucratic professionalism and the dependent variable. As we see in this present chapter, divided government does not affect the level of bureaucratic professionalism when measured as the share of health professionals in state government.

VI. Conclusion

In the comparative context, Greer describes health departments as “neither omnipotent nor subordinate, neither tools nor entrenched bureaucracies” (2010, p. 118). The purpose of this chapter was to examine the extent to which principals were able to affect the professional composition of health departments. While bureaucracies are not simply tools of political actors, I hypothesized that they may be treated as such by said actors. There is limited evidence that this

is occurring. Following my robustness checks, only model 2 of *Percent Public Health Employees* yielded statistically significant results in the hypothesized direction. This model offered support for my second hypothesis, in which switching to divided government leads to a greater percentage of public health professional employees in states with more professionalized legislatures. This finding suggests that the executive branch will arm itself with its own expert public health professionals in the face of professionalized legislatures and, presumably, their dedicated health committee staff.

As mentioned earlier, I attribute my limited and inconsistent findings to shortcomings in my theory and measurement. My theory aims to explain a phenomenon that may be less responsive to the preferences of the governor and the legislature in the face of other pressures. Additionally, I also operationalize gubernatorial power narrowly, in that I only focus on appointment power. While the political causes of bureaucratic professionalism were not identified, the policy effects may be more easily elucidated. In the next chapter, I examine the effects of variation in bureaucratic professionalism on state childhood immunization rulemaking.

CHAPTER 4

Who Calls the Shots? The Role of Professionalism in State Childhood Immunization Rulemaking Activity, 1998 to 2012

I. Introduction

Expertise and authority are the currency of professions (Starr, 1982). While governments may house professionals who possess expertise in a particular policy area, grants of authority to these professionals are not automatic. Politicians are noted for their short-term time horizons and constant eye toward reelection (Mayhew, 1974). Meanwhile, professionals take a more long-term and nuanced view of complex subjects, one that cannot fit “on a bumper sticker or lawn sign” (Miller and Whitford, 2016, p. 235). However, given the complex and uncertain nature of particular policy areas, politicians may choose to yield to professionals within the executive branch—whom I call bureaucrat-professionals—and provide them with the autonomy (and policy authority) necessary to tackle emerging problems (Bawn, 1995; Epstein and O’Halloran, 1999). Well-documented examples from the FDA (Carpenter, 2010) and the financial services sector (Miller and Whitford, 2016), two complex policy areas, further support this view that governments do grant policy authority to bureaucrat-professionals under certain conditions.¹²⁵

Many important aspects of communicable disease policy, another complex policy area, are decided upon at the state level. State health departments are at the fore of implementing such policies, which may include decisions about which vaccines are required for school children,

¹²⁵ I am by no means stating that legislators grant unlimited authority to bureaucrats. I am simply making the claim that there are circumstances in which bureaucrat-professionals are given some amount of authority to make policy decisions as part of the implementation process.

whether exemptions from these mandated vaccines should be provided, and for what reasons (e.g., medical, religious, or philosophical). These decisions are not without controversy.¹²⁶ Political disagreements have emerged as a result of certain events, namely research falsely asserting a vaccine-autism link; misplaced concerns about thimerosal, a vaccine preservative; and the decision to mandate that school children be immunized against HPV, a sexually transmitted disease. While these events have convinced some parents that vaccines are unsafe, others feel that, safe or not, mandating vaccination impinges upon individual autonomy and therefore an opt-out mechanism should be in place.¹²⁷ As one recent example in Michigan illustrates, the executive branch may respond to these challenges based on its public health authority.

On November 1, 2014, the Michigan Department of Community Health published a proposed rule change in the state's register that aimed to increase the stringency of its vaccine exemption requirement.¹²⁸ Following the adoption of the rule, parents wanting to exempt their child from mandatory vaccinations shall have their exemption certified by their local health department.^{129, 130} Such policy changes are viewed as barriers to opting out of required immunizations and, as such, are vehemently opposed by groups critical of vaccines. Although these groups criticized Michigan officials for stymying public participation, the rule filed with the Secretary of State contained numerous administrative code citations documenting the

¹²⁶ Controversy about the provision of vaccines has been documented as early as the 1800s, so it is important to acknowledge that recent events are also part of a longer history (Colgrove, 2006).

¹²⁷ From 1998 to 2012, state legislators proposed bills that touched on many of these concerns, though very few passed into law (Lillis, Kirkland, and Frick, 2014; Omer *et al.*, 2014). However, little is known about the rulemaking side of the policy process.

¹²⁸ In early 2015, the Michigan Department of Community Health was involved in an executive reorganization, and is now part of the Michigan Department of Health and Human Services.

¹²⁹ State of Michigan. http://www.michigan.gov/documents/lara/MR19_110114_473058_7.pdf

¹³⁰ These restrictions are not placed on children with a medical condition that necessitates their exemption from vaccination.

department's authority to act directly.^{131, 132} Michigan appears to be the lone state to initiate this type of policy change via the rulemaking process in 2014. Why did the bureaucracy choose to go this route in Michigan and not in other states? I argue that the extent of state-level bureaucratic professionalism is an important factor in the decision to promulgate rules. Further, I demonstrate that the effects of professionalism are conditional on the bureaucracy's particular political context.

The purpose of this chapter is to elucidate the conditions under which state-level bureaucrats promulgate rules, specifically within the realm of childhood immunization policy.¹³³ I pay particular attention to two features: the extent of professionalism in the executive branch and the presence of divided government. As described in Chapter 2, the extent of professionalism may affect the bureaucracy's willingness to propose or adopt rules due to the expertise, information-sharing, networks, and self-regulation that bureaucrat-professionals bring to the rulemaking decision. In addition to the extent of professionalism, the presence of divided government, where different parties control the executive and legislative branches, may further affect the bureaucrat's willingness to make rules. Under these conditions, the executive branch must determine whether or not to push policy via the rulemaking process in the midst of a potentially hostile legislature. I also pay attention to the institutional arrangement of professionals by considering the influence of Boards of Health on rulemaking activity.^{134, 135} This

¹³¹ National Vaccine Information Center Newsletter. "Michigan Guts Vaccine Exemptions While Ohio Saves Them." 12/29/2014

¹³² The text of this rule can be found at: http://w3.lara.state.mi.us/orrsearch/1472_2014-073CH_AdminCode.pdf (accessed 08/30/16).

¹³³ As I am interested in how professionals interact with different institutional and political environments, I felt it was important to select a specific, relevant policy area on which to test a theory of bureaucratic professionalism. In particular, I examine policy-specific rules that may (or may not) have come from policy-specific legislation. I also examine the effects of policy-specific institutions.

¹³⁴ According to a 2001 survey, public health professionals serve on Boards of Health in a vast majority of states with such boards (Beitsch *et al.*, 2006).

study will contribute to our understanding of bureaucratic behavior by examining the interplay between key political and institutional factors across states and over time.

In Section II, I provide a brief overview of the literature on bureaucratic behavior and describe rulemaking as a key agency activity. In Section III, I offer specific hypotheses and describe my data and methods in Section IV. In Section V, I present the results and discuss the implications of these findings in Section VI. I conclude in Section VII.

II. A Theory of Bureaucratic Professionalism

Scholars disagree as to the determinants of bureaucratic actions such as rulemaking. At one end of the spectrum, scholars advance theories of “bureaucratic autonomy” in which agencies make policy choices with impunity.¹³⁶ Toward the other end of the spectrum, “political control” scholars argue that political actors can check bureaucrat behavior directly or indirectly.¹³⁷ Each of these theories contributes to the larger theoretical puzzle of why bureaucracies behave the way they do. However, some of these theories treat bureaucracies, and the bureaucrats that comprise them, as unitary actors that lack distinguishing characteristics.¹³⁸

¹³⁵ I consider the presence of a Board of Health as institutional because this is generally a matter of law (e.g., initiated by an executive reorganization or statute).

¹³⁶ As outlined by Krause (1999), bureaucratic autonomy may arise from one of several sources: politician indifference to policy administration (e.g., Dodd and Schott, 1979), agency-level shifts in bureaucratic professionalization (e.g., Eisner and Meier, 1990), opportunities that arise from decentralization and increased political competition (Wilson, 1989), and informational asymmetries between principals and agents that are too costly to overcome (e.g., Niskanen 1971).

¹³⁷ For example, the legislature can directly constrain bureaucratic behavior, either by limiting the actions that can take place or monitoring—and potentially responding to—actions after the fact (e.g., McCubbins and Schwartz 1984; McCubbins, Noll, and Weingast, 1987, 1989). Legislators and governors can set up institutional barriers to indirectly limit action, such as designing an agency to have a higher proportion of appointees, who are generally more responsive to political considerations (Moe, 1989).

¹³⁸ There are exceptions. For example, studies have examined variations in bureaucrat occupations (Eisner and Meier, 1990) and professional affiliation (Balla, 2001) as explanatory variables, rather than controls.

Furthermore, many bureaucracy studies focus on the federal level.¹³⁹ Yet, states play an important role in policy implementation, where childhood immunization is but one example.¹⁴⁰

Below, I justify the need for a new theory of bureaucratic professionalism that recognizes these individuals as both enabled and constrained by their professional identity within a political system. I also describe rulemaking as a key activity that provides a policy benefit to the bureaucrat and discuss potential costs to rulemaking.

A. Professionalism and Bureaucratic Behavior

Professionalism is a distinguishing characteristic that may affect bureaucratic behavior at the state level. Political scientists have incorporated the notion of bureaucratic professionalism in their work for quite some time (see for example, Friedrich, 1940; Finer, 1941; Kaufman, 1960; Carpenter, 2001). However, previous scholarship does not fully consider important aspects of bureaucratic professionalism. First, although prior scholarship mentions professionalism, it fails to consider how this characteristic can both limit and incentivize certain behaviors such as rulemaking. Wilson defines professionals as “people trained and certified by some external institution” that are also rewarded by this institution (1980, p. 379). While this notion of external influence is important, it does not take into account the fact that professionals are concerned about the reputation of their profession, for example.¹⁴¹ Second, as described in Chapter 2, prior work suggests that professionalism is a neutral quality, at odds with ideological or partisan orientations. For example, Moe (1985b) describes the complex relationships that affect National

¹³⁹ An emerging literature examines state-level rulemaking behavior. See for example, Boushey, 2013 and Boushey and McGrath, 2016.

¹⁴⁰ Childhood vaccinations are approved at the federal level by the Food and Drug Administration (FDA). The Advisory Committee on Immunization Practices (ACIP), which is housed within the Centers for Disease Control and Prevention (CDC), decides whether to recommend the vaccination. States then choose which vaccines to mandate for school entry based this recommendation.

¹⁴¹ While Wilson does mention the effects of professional norms, he does not place this within the context of concern for the profession and how this could constrain a bureaucrat’s behavior. And, as discussed in Chapter 2, we should not focus solely on norms in explanations of bureaucrat-professionals’ behavior.

Labor Relations Board (NLRB) staff behavior. He describes the staff as professional due to their responsiveness to shifting enforcement criteria, which is based on principal preferences.¹⁴² In other work, Moe (1987) describes how NLRB board and staff member professionalism means that they do not act in a strategic manner, but rather act in service to the organization.¹⁴³ Third, scholars such as Carpenter (2010) and Bawn (1995) examine large agencies at the federal level in order to understand when politicians yield to professional expertise. What about at the state level, where the role of public health may be misunderstood and/or undervalued,¹⁴⁴ and therefore its reputation weakened (or nonexistent)? Finally, extant theories do not recognize the influence of dual identities, whereby the individual is both a government bureaucrat *and* a professional.¹⁴⁵

B. Rulemaking and Bureaucratic Professionalism

State-level bureaucrats engage in rulemaking to set in place numerous programs, surveillance mechanisms, and other aspects that protect and promote public health. At the state level, rules may be defined as that which “implements, interprets, or prescribes law or policy, or that describes organization, procedure, or practice requirement of an agency” (Iowa Code, chapter 17A, taken from Jensen and McGrath, 2011).¹⁴⁶ Individual bureaucrats remain in civil

¹⁴² Again, the NLRB’s professional staff likely behaved in a more neutral and technocratic manner because the agency was less politicized at the time.

¹⁴³ Later, Moe states that professionalism and political control can complement each other. He describes professionalism as “a vehicle for the orderly exercise of political control” because professionals are of a type that has predictable goals and standards (1987, p. 292).

¹⁴⁴ Public health is distinct from health care, yet the two are often conflated to the detriment of public health. Teutsch and Fielding (2013) provide a distinction between the dominant medical model of disease and a public health model. Lantz *et al.* (2007) describe how this leads to an “overemphasis” of the provision of safety-net medical services at the expense of broader policies to improve health status. Polling data from the Harvard School of Public Health (2010) and Louis Harris and Associates (1997) indicates that most Americans do not know what public health is and many confuse it with safety-net medical care. Hall (2003) offers a discussion of the differences in public health vs. health care law and the implications for public health regulation.

¹⁴⁵ But see Knott and Miller’s discussion of a “dual system of authority” (1987) as an exception.

¹⁴⁶ An emerging area of political science research focuses on rulemaking as key bureaucratic activity (see, for example, O’Connell, 2008; Yackee and Yackee, 2009; and Potter and Shipan, 2012). From the scholar’s point of view, the focus on rulemaking appears warranted, as federal bureaucracies issue far more rules in a given year than Congress passes laws. To give one example, O’Connell notes that while Congress passed 119 public laws in 2009, federal agencies finalized about 3,500 rules (2011). This is likely true at the state level as well; for example, the state of Michigan’s 96th legislature passed six laws containing the keyword “public health,” while the bureaucracy

service because they obtain some policy benefit through their work (Gailmard and Patty, 2007); rulemaking represents a significant policy implementation tool that bureaucrats have at their disposal. States have the unique potential, through the Tenth Amendment, to regulate those activities not overseen by the federal government. A state-level bureaucrat may legally be able to make policies to improve the lives of those living in a particular state. In addition to having the legal authority to take action on a policy issue, the bureaucrat may also have the requisite financial resources in comparison to his/her private sector counterpart.¹⁴⁷ For a bureaucrat that desires policy outcomes, he or she benefits by working for an entity that is the size and scope of the state government. Thus, bureaucrats are uniquely situated to promulgate rules within state government and obtain a policy benefit for this work that outweighs other benefits that a private sector position would offer.

On the other hand, bureaucrats face certain costs when taking an overt action such as rulemaking, including time, the potential of additional oversight of future actions, job retention, heightened managerial scrutiny, and uncertainty about how this action will change the bureaucrat's job. Like most official government actions, rulemaking involves some amount of risk if the action does not work out as planned. Proposed rules might not be adopted, which would mean that time spent working on the policy could have been directed toward a more fruitful endeavor. Or, adopted rules might be overturned by legislative review and perhaps heighten the oversight of the legislature or the governor's office with regard to the bureaucrat's future activities. And, if certain actions backfire, the bureaucrat may be forced to resign or may

finalized 15 rules during the same time period. These results were obtained using Lexis Nexis State Capital. "Public health" was used as the search term for proposed regulations in 2011-2012. Proposed laws were located by searching for "public health" in the bill subject or synopsis during the 96th legislature (2011-2012). Note: two rules were uncodified because they related to emergency provisions.

¹⁴⁷ State budget spending dwarfs that of private foundations: according to the Foundation Center, foundation giving for public health totaled \$600 million in 2011. As an example, that same year, the California Department of Public Health spent over \$3 billion (ASTHO State Profiles). Additionally, corporations must answer to their shareholders if actions come at the expense of profit

be fired. To a lesser degree, there is the risk that the bureaucrat may be limited by managerial control (Huber, 2007) and thus never reach the above scenarios. The bureaucrat may also be risk averse about the future once he/she takes a certain action and it comes to fruition (e.g., the policy is implemented). There may be a shift in what Salamon describes as a bureau's political economy: the procedures, networks, and expertise specific to its given tasks (1989, p. 8). What if the bureaucrat cannot embrace the new procedures, networks, or expertise necessary to succeed on this new policy path, and instead his or her position becomes obsolete?¹⁴⁸ Without any way to protect his or her current procedures, networks, and expertise, bureaucrats will avoid taking actions such as promulgating rules because it will be too costly.

As seen in Chapter 2, I define *bureaucratic professionalism* as the extent of self-regulating, networked experts in a policy-relevant field within an executive branch unit (e.g., agency, division, etc.). I conducted interviews with state-level bureaucrats and professional association representatives, as well as drew upon on previous work, to refine this definition. I argue that professionalism has the potential to affect the rulemaking cost/benefit calculus and describe the anticipated effects below.

¹⁴⁸ There is also theory that suggests shifting activities can be costly to the individual bureaucrat, where actors will choose to maintain their present strategy even if it leads to suboptimal outcomes (Bednar and Page, 2007). Bednar and Page assess this claim by looking at what they term *games theory*, in which their models have agents playing multiple games simultaneously. Given the cognitive burden of shifting strategies in response to different games, they theorize that agents will adopt similar strategies despite the differing incentives in each game. Based on this theory, bureaucrats would not choose a course of action that carries with it a greater sense of uncertainty in relation to the status quo.

III. Hypotheses

The interviews in Chapter 2 demonstrate that belonging to a profession can confer benefits, such as network support and informational resources, to expertise-wielding bureaucrat-professionals. The vast majority of state employee interviewees indicated that they are members of one or more professional associations and some noted how invaluable the benefits of membership are to them. But, professional associations do not formally discipline their members, suggesting that the amount of pressure felt by bureaucrat-professionals to act in accordance with the public health consensus will likely not overcome political pressure to the contrary. This section proposes testable hypotheses to understand how different conditions affect the rulemaking behavior of bureaucrat-professionals. Here, I focus on two conditions: the presence of divided government and the presence of a board of health.

A. Bureaucrat-Professionals and Divided Government

Under what conditions do state-level bureaucrat-professionals propose and adopt rules? First, divided government may affect rulemaking volume. If policy benefit is their primary motivation, and a political misstep could roll back years of progress, bureaucrat-professionals may be more risk averse in these situations.¹⁴⁹ Bureaucrats can get their wings clipped by the legislature through statutory changes that undo prior regulations as well as limit future ones (Kaiser, 1980). While the bureaucrat-professional faces the risk of punishment on the political side, it does not appear that their professional associations have the power to sanction them, nor do they appear to want to. Therefore, the public health bureaucrat would not face professional repercussions for failing to promulgate rules. Instead, they may be using their professional networks to strategize for when the political environment is more favorable and their expertise

¹⁴⁹ Although I did not explicitly ask about the tradeoffs of working in the public sector, an Executive Official from Vermont indicated that he/she took this position to have an impact on health policy and not because of the salary. The interviewee said that his/her private sector salary would have been higher than what he/she currently receives.

can be used to formulate policy. Thus, professionals may be more reluctant to promulgate rules when it is difficult to determine the political consequences:

- *H1: During divided government, a greater share of professionals will have a negative effect on rulemaking.*

In this political context, the bureaucrat-professional's ability to utilize his/her expertise may be constrained.¹⁵⁰ This constraint may be due to concerns about reputational effects, or it may be due to the fact that the profession cannot effectively coerce the bureaucrat-professional to promulgate a rule regardless of the political environment. As a result, the cost of promulgating a rule will outweigh the potential policy benefit.

However, I acknowledge that a plausible alternative exists. Theory indicates that the bureaucracy will be able to move policy in its preferred direction as long as it is within the ideological position staked out by the governor on the one side, and the legislature on the other, where the agency will presumably adjust the policy in a way that is favorable to the governor.¹⁵¹ To undo the policy change instigated by the bureaucracy, the governor and the legislature would need to agree to overturn it. However, by moving the policy ideologically closer to the governor, the policy will stay in this new position because the governor would veto legislation to overturn the new rule. It is reasonable to assume that a bureaucrat-professional, with substantive expertise and various resources to obtain additional policy knowledge, would be able to gather pertinent information at a lower cost than someone less familiar with the policy area. And, the bureaucrat-professional would be able to do this despite any resource barriers the legislature puts in place. Professionals in a scientifically-driven policy area such as public health may therefore view divided government as a rulemaking opportunity because politicians would be more willing to

¹⁵⁰ Similar to Shipan (2004), I refer to different political contexts as a regime. Based on how I describe the term, a divided government regime exists when there is a governor of one party and a unified legislature of another.

¹⁵¹ Shipan (2004) describes a variation of this scenario as a "gatekeeping regime," which I summarize in Chapter 1.

defer to this expertise (Bawn, 1995). Additionally, Miller and Whitford (2016) argue that federal-level politicians will grant autonomy when there is conflict in a separation of powers system. Under divided government and the conflict it represents, politicians will delegate to bureaucracies to improve accountability and broker a compromise between the president and Congress (or, in this case, the governor and the state legislature). Again, this would suggest that we would see more rulemaking by professional agencies under divided government. However, they focus on the federal level, where agency professionalism varies across time but not by government regime (i.e., government is either unified or divided for a particular agency at a particular level of professionalism).

My statistical results will enable me to adjudicate between these two plausible outcomes, where a negative relationship would suggest support for my hypothesis and a positive relationship would instead suggest that the alternative is supported.

Additionally, the effects of divided government on state-level rulemaking is unclear. At the federal level, studies indicate that rulemaking decreases under divided government (Yackee and Yackee, 2009; Potter and Shipan, 2017). At the state level, Boushey (2013) observed that divided government contributes to a significant increase in rulemaking, *ceteris paribus*. In this chapter, I suggest that the effects of divided government may be conditional on another factor related to bureaucratic performance. I examine the conditional effects of bureaucratic professionalism on divided government as a contribution to this literature.

B. Bureaucrat-Professionals and Institutional Arrangements

Institutional design can place constraints on bureaucrat-professionals, lessening the opportunity for rulemaking. Executives attempt to enhance their control over the bureaucracy by turning to centralization and politicization (Moe, 1985a). Boards of health represent executive

institutional design preferences at the state level. They are groups of health professionals that have a centralized oversight role on matters including immunization rulemaking. And, they represent the politicization of expertise because the governor usually plays a prominent role in member selection.¹⁵²

The presence of a board of health may affect the reaction of bureaucrat-professionals to divided government. Yackee and Yackee (2009) examined the influence of structure on rulemaking by looking at the effects of divided government on cabinet and non-cabinet agencies. They found that the impact of divided government is felt more acutely by agencies located closer to the president. Therefore, one can make the case that a centralized rulemaking structure filled with appointees, such as that represented by a board of health, brings rulemaking closer to the governor. In essence, boards represent instances in which professional behavior is made more sensitive to political conditions, and thus divided government would have a greater effect. The presence of more bureaucrat-professionals adds an additional layer: as these individuals are already sensitive to shifting political conditions, we would expect a strong negative effect on rulemaking.

- *H2: A centralized rulemaking process will be associated with greater decreases in rulemaking under divided government as bureaucratic professionalism increases.*

Again, the bureaucrat-professional's ability to utilize his/her expertise is constrained. However, the constraint is due to the nature of the hierarchical decision-making process. Boards of health are comprised of different health professionals, each with their own expertise, networks, and reputational concerns. The final decision about a rule will be the result of political peer review, where the merits of a rule are weighed against concerns about regulatory controversy.

¹⁵² With the exception of Alabama, the governor is either the sole appointer of Board members, or shares this responsibility in the case of Massachusetts and North Carolina (Hughes *et al.*, 2011).

IV. Data and Methods

In order to examine how bureaucratic professionalism influences state-level rulemaking, I collected data that captures the variation in rulemaking, professionalism, institutions, and political context. A brief description of variables appears in Appendix C, Table C-1 and their respective sources appear in Table C-2.

The dependent variables, *Proposed Rules* and *Adopted Rules*, are measured in terms of counts of rules either adopted or proposed by state i in year t . This data was collected from LexisNexis State Capital for the years 1998 through 2012.¹⁵³ The collection strategy focused on rules that made noteworthy changes to the existing law. With help from a trained research assistant, I included only those rules that made changes to the following state-level policies: exemption expansion, exemption contraction, mandate expansion, mandate contraction, mercury ban expansion, mercury ban contraction, mercury information, ingredient information, and disease risk information.¹⁵⁴ One criticism of this approach is that the amount of rules may be not of interest in and of itself, as one rule may encompass several policy changes. Therefore, I count each policy within the rule separately.¹⁵⁵ However, rules closely approximate the number of policies: there is an average of 1.1 policies per adopted or proposed rule in my dataset.

Following my hypotheses, I have three key independent variables. As described in Chapter 3, *Share of Health Professionals* represents the share of physicians and surgeons, physicians assistants, registered nurses, nurse practitioners and anesthetists, medical scientists,

¹⁵³ The basic keyword search employed was: vacc! or immuniz! and not cattle or dog or veterinar! Additional information about the specific search strategy is available upon request.

¹⁵⁴ Refer to Appendix C, Table C-1 in for a definition of each type of policy. These categories were developed by Lillvis, Kirkland, and Frick (2014).

¹⁵⁵ For example, a 2002 proposed rule in Arkansas both “Requires that children and students furnish proof of immunity against poliomyelitis, diphtheria, tetanus and other communicable diseases” and “Removes physical disability as reason for exemption.” This would count as two rulemaking efforts in my dataset.

medical managers, and other health diagnosing practitioners working in state government.^{156, 157,}

¹⁵⁸ Again, this data was obtained from IPUMS, which is based on the U.S. Census's Annual Social and Economic Supplement of the Current Population Survey. This supplement enables the user to obtain state-level estimates of certain occupations within state government. I chose this measure of bureaucratic professionalism because I am making a theoretical argument about the behavior about individual bureaucrats. As a result, bureaucratic professionalism is better operationalized by employee-level data rather than the salary of the head of the health agency. And, unlike the other employee-level measures discussed in Chapter 3, *Share of Health Professionals* is available for the entire range of years in my dataset. Further, as immunization rulemaking takes place in different agencies (e.g., departments of education as well as health), it makes sense to employ a measure that encompasses health professionals in other departments.

In addition to *Share of Health Professionals*, I have two other key independent variables: *Divided Government* and *Centralized Rulemaking Process*. I coded *Divided Government* as a dichotomous variable that captures whether or not a single party controlled the legislature and the other party controlled the governorship (Binder, 1999). I created this variable by using partisanship information available in the *Book of the States*, a reference published annually by the Council of State Governments.¹⁵⁹ I operationalized *Centralized Rulemaking Process* as whether or not the state had a board of health with authority over rulemaking. This data was

¹⁵⁶ The distribution of *Share of Health Professionals* is displayed in Appendix C, Figure C-1. Variation across states and over time is displayed in Appendix B, Figure B-2.

¹⁵⁷ This operationalization of bureaucrat-professionalism captures the expertise component of my theory, but it does not fully address the information-sharing, network, or reputation components. These types of data have been difficult to collect, despite trying different sources and strategies. While these unobserved components may bias my estimates, my interviews do not suggest this bias is systematic (e.g., budgets for conferences—mechanisms for information-sharing and support—are not more likely to be cut during divided government).

¹⁵⁸ Note that I am considering health professionals across state government, not simply the health department. This is on purpose, as 14% of the rules come from a department outside health, public health, or medical services. These include departments of education, family and protective services, and human services.

¹⁵⁹ Again, this reference can be found on the Council of State Governments' website, <http://knowledgecenter.csg.org/kc/category/content-type/content-type/book-states>

obtained from Hughes *et al.* (2011) and supplemented by contacting states if there were gaps or questions.

Additionally, I control for important legislative behaviors relevant to bureaucratic rulemaking: legislative review and legislative activity. As state legislatures tends to prefer *ex post* monitoring (Reenock and Poggione, 2004), it is important to control for whether the legislature has the legal means to engage in such monitoring during the rulemaking process. *Legislative Review* is a trichotomous variable that is coded as “0” if the legislature does not review proposed or existing rules, “1” if the legislature reviews proposed rules only, and “2” if the legislature reviews existing rules.¹⁶⁰ This data was obtained from the *Book of the States* as well. Bureaucrats may react cautiously to an active legislature—one that passes laws within a particular policy domain—because they would be more likely to be able to react to rulemaking. As previously described, bureaucrats may be concerned about their rulemaking past, present, and future being undone by legislation. At the federal level, the volume of laws passed has a negative effect on rulemaking (Potter and Shipan, 2012). To capture legislative activity related to childhood immunizations, I used LexisNexis State Capital to locate immunization legislation by state and constructed a dichotomous variable, *Legislature Passed Law*.¹⁶¹ Similar to the rulemaking data, I count each policy change as a separate law passage.¹⁶²

I also control for organizational arrangements of bureaucrat professionals using the variable, *Public Health Configuration*. Rulemaking is a strategic decision made by bureaucrat-professionals that organizational arrangement may help restrict, as organization size is a key

¹⁶⁰ This third category includes states that review both proposed and existing rules.

¹⁶¹ I also alternatively estimate models with the actual count of legislation passed. For a full description of how this legislative data was collected, see Lillvis *et al.*, 2014.

¹⁶² This only affected one piece of legislation, Virginia HB 2295, which passed in 2008. This law (1) added a mandate requiring the chicken pox vaccine and (2) expanded exemptions by allowing proof of varicella immunity or disease history in lieu of vaccination.

contributor to differences in the strategic decision-making process. Size affects the comprehensiveness of the process (e.g., the amount of information gathered to factor into the decision), the extent of managerial involvement, and the speed with which decisions are made (for a review, see Rajagopalan, Rasheed, and Datta, 1993). This variable considers the effect of various configurations of public health departments, where public health could be a stand-alone department, or it could be combined with one or more of the following functions: Medicaid, mental health, or human services. I updated the data from Lantz *et al.* (2013) and employed the following coding scheme: “1” if public health is its own department, “2” if public health is combined with one other function, “3” if combined with two other functions, and “4” if combined with three other functions.

Next, I control for political conditions, resources, and demand for regulation. Political conditions consists of the following variables: *Legislative Ideology*, *Governor Party*, and *Agency Head Appointed*. I also account for the tendency of the executive to increase rulemaking activity prior to transitioning out of office (O’Connell, 2008; Potter and Shipan, 2012) using *Midnight*, which is a dichotomous variable that signifies whether the governor is in his/her last year of office. As the amount of resources directed to the bureaucracy may affect bureaucratic behavior, I included the variables *Health Budget Per 1,000* and *Staff Per 1,000*, as well as *Budget As A Percentage of Gross State Product* (GSP).¹⁶³ I account for demand for new regulation using *Pertussis Incidence*, which is lagged by one year.¹⁶⁴ While this controls for the need for new regulation due to infectious disease concerns, it also controls for the extent to which vaccine

¹⁶³ Health Budget Per 1,000 is measured in 2010 dollars.

¹⁶⁴ I did not use measles incidence because endemic measles was declared eradicated from the U.S. in 2000 and this designation was reaffirmed in 2011. There was a median of 63 imported measles cases per year during this timeframe. Due to geographic clustering, it is likely that multiple states would have had no cases from 1998 to 2012 (McLean *et al.*, 2013). This made pertussis a better choice to understand variation in the demand for vaccine policies.

exemption regulation is already in place because more permissive exemption policies are associated with greater disease incidence (Omer *et al.*, 2006). I include the variable *Legislative Salary*,¹⁶⁵ measured in 2010 dollars, to control for differences in legislative professionalism across states. I divided *Legislative Salary* by 1,000 so results should be interpreted as a dependent variable change in relation to a \$1,000 dollar change in legislator salary. Finally, I include *Justices Elected* as a control variable in the model containing the triple interaction (described below), as neither *Justices Elected* nor *Centralized Rulemaking Process* varies within states over time.

Using this data, I estimated negative binomial models because my dependent variable consisted of counts of rules adopted or proposed by state i in year t . As zero values are true zeros (i.e., I assume each state has the opportunity to propose a rule), I considered both Poisson and negative binomial models. Negative binomial models relax the assumption that the variance equals the mean and therefore accounts for overdispersion. Overdispersion and excess zeroes could compromise the estimates, producing biased probabilities, underestimates of the standard errors, and overestimates of the z-statistics.¹⁶⁶ However, overdispersion in the dependent variable is not an issue in this dataset, suggesting that a Poisson model would be acceptable.¹⁶⁷ I compared Poisson and negative binomial models using Akaike's information criterion (AIC) and Bayes' information criterion (BIC), which indicated that the negative binomial with mean

¹⁶⁵ I chose to use a measure of legislative salary, rather than a composite measure such as the Squire Index, as a proxy for legislative professionalism for a couple of reasons. First, the Squire index is slow-moving and obscures differences in professionalism components across states (Bowen and Greene, 2014). Second, legislative salary roughly correlates with measures that take into account salary and staffing such as the National Conference of State Legislatures' three-tiered approach. Third, following Boushey and McGrath (2016) I take into account session length by incorporating legislator per diems into the measure of legislative salary.

¹⁶⁶ Approximately 73% of state-years in my dataset have zero values for rulemaking volume, indicating that this should be accounted for in the model estimation strategy. Thus, count models are more appropriate than OLS. I chose a negative binomial model over hurdle and zero-inflated models because these models assume that a different process generates zero and non-zero values, perhaps via two stages of decision-making (i.e., in hurdle models) or two different types of decision-makers (i.e., in zero-inflated models).

¹⁶⁷ The variance does exceed the mean, but only by a modest amount (between 30 and 40% for the dependent variables).

dispersion is the preferred model. As there may be unobserved characteristics that differ between states and years, I include state and year dummy variables that serve as fixed effects as recommended by Allison and Waterman (2002). As described above, I also control for a number of other political and demographic factors that may affect state rulemaking volume.¹⁶⁸ The descriptive statistics and sources of data for each variable are listed in Appendix C, Table C-2.¹⁶⁹ In sum, I estimate the following models with robust standard errors, where the dependent variable is either proposed or finalized rules in a given state-year:

$$(1) \quad y_{it} = f(\beta_0 + \beta_1 \text{Share Health Professionals}_{it} + \beta_2 \text{Divided Govt}_{it} + \beta_3 \text{Legislative Review}_{it} + \beta_4 \text{Legislature Passed Law}_{it} + \beta_C \text{Controls}_{it} + \text{State}_i + \text{Year}_t + \varepsilon_{it}).$$

and with the interaction term,

$$(2) \quad y_{it} = f(\beta_0 + \beta_1 \text{Share Health Professionals}_{it} + \beta_2 \text{Divided Govt}_{it} + \beta_{12} \text{Share Health Professionals}_{it} * \text{Divided Govt}_{it} + \beta_3 \text{Legislative Review}_{it} + \beta_4 \text{Legislature Passed Law}_{it} + \beta_C \text{Controls}_{it} + \text{State}_i + \text{Year}_t + \varepsilon_{it}).$$

For my third hypothesis, I estimate the following model with a triple interaction:¹⁷⁰

$$(3) \quad y_{it} = f(\beta_0 + \beta_1 \text{Share Health Professionals} + \beta_2 \text{Divided Govt} + \beta_{12} \text{Share Health Professionals} * \text{Divided Govt} + \beta_3 \text{Legislative Review} + \beta_4 \text{Legislature Passed Law} + \beta_5 \text{Centralized Rulemaking Process} + \beta_{25} \text{Divided Govt} * \text{Centralized Rulemaking Process} + \beta_{15} \text{Share Health Professionals} * \text{Centralized Rulemaking Process} + \beta_{125} \text{Share Health Professionals} * \text{Centralized Rulemaking Process} * \text{Divided Govt} + \beta_C \text{Controls} + \varepsilon).$$

¹⁶⁸ Health department centralization (i.e., whether local and county employees are part of state government) is assumed to be constant over time, and thus would be accounted for by the state dummy variables.

¹⁶⁹ The right-hand side variables are, at most, somewhat correlated (i.e., $|r| \leq 0.4$).

¹⁷⁰ Again, *Centralized Rulemaking Process* does not vary across states or over time, so I did not use state and year fixed effects in this model.

This methodological approach differs slightly from prior studies of rulemaking. For example, Yackee and Yackee (2009) estimate pooled negative binomial models without robust standard errors and employ random effects with a monthly counter variable to control for cross-time heterogeneity. Potter and Shipan (2012) do not explicitly control for cross-time heterogeneity and instead argue that variables such as agency independence, divided government, and midnight serve as agency and time fixed effects. O’Connell (2008) estimates a Poisson regression model with agency fixed effects and robust standard errors.¹⁷¹ A second difference is that some studies at the federal level examine smaller units of time, such as months (Yackee and Yackee, 2009) or quarters (Potter and Shipan, 2012). However, most of my key independent variables (i.e., professional share, divided government, and centralized rulemaking) do not vary by month or quarter, or the data is not available in this form. Boushey and McGrath (2016) have state-year as their unit of analysis, but estimate OLS models and note that these results are similar to those reached using Maximum Likelihood Estimation count models.

V. RESULTS

A. Proposed Rules

In support of my first hypothesis, I find that state governments with a greater share of health professionals propose fewer rules under divided government. Table 1, column 1 shows the results of the model of proposed rules without the interaction term. The theory predicts that there will be conditions under which these factors will have either a positive or negative effect. Thus, we would expect that neither *Divided Government* nor *Share of Health Professionals* would be significant in isolation. And, this is in fact what we observe. Table 4-1, column 2 on the following page displays the results of the model of proposed rules containing the interaction

¹⁷¹ Later in this chapter, I estimate fixed-effects Poisson models as a robustness check.

effect. The marginal effect of *Divided Government* on proposed rules as *Share of Health Professionals* increases is negative and significant (refer to Figure 4-1 following Table 4-1). In terms of policy-relevant magnitude, this results in a negative change of less than one rule. Switching to a divided government regime, there is a decrease of 0.12 rules when moving from the mean *Share of Health Professionals* to one standard deviation above the mean ($p < 0.01$).^{172,173} This increases to 0.22 proposed rules when moving to two standard deviations above the mean value of *Share of Health Professionals* ($p < 0.01$). To provide context for the magnitude of the change, the mean number of proposed rules is 0.28 with a standard deviation of 0.62.

Table 4-1. Analysis of State Childhood Immunization Regulation: Proposed Rules (1998–2012)

| Variable | Proposed Rules (1) | Proposed Rules (2) | Proposed Rules (3) |
|--|-----------------------|--------------------------|--------------------------|
| <i>Share of Health Professionals</i> | -0.002 (0.039) | 0.063 (0.039) | 0.089 (0.061) |
| <i>Divided Government</i> | -0.216 (0.211) | 0.409 (0.278) | 0.309 (0.388) |
| <i>Divided Government x Share Health Profession</i> | | -0.219 *** (0.080) | -0.144 (0.102) |
| <i>Centralized Rulemaking</i> | | | 0.338 (0.357) |
| <i>Centralized Rulemaking x Share of Health Prof.</i> | | | -0.036 (0.094) |
| <i>Centralized Rulemaking x Divided Government</i> | | | 0.412 (0.608) |
| <i>Centralized Rulemaking x Share of Health Professionals x Divided Government</i> | | | -0.153 (0.154) |
| <i>Legislative Review</i> | 0.173 (0.387) | 0.189 (0.375) | 0.169 (0.139) |
| <i>Legislature Passed Law</i> | 0.406 (0.250) | 0.352 (0.252) | 0.286 (0.272) |
| <i>Public Health Configuration^a</i> + 1 other agency | 1.494 * | 1.593 * | 0.227 |

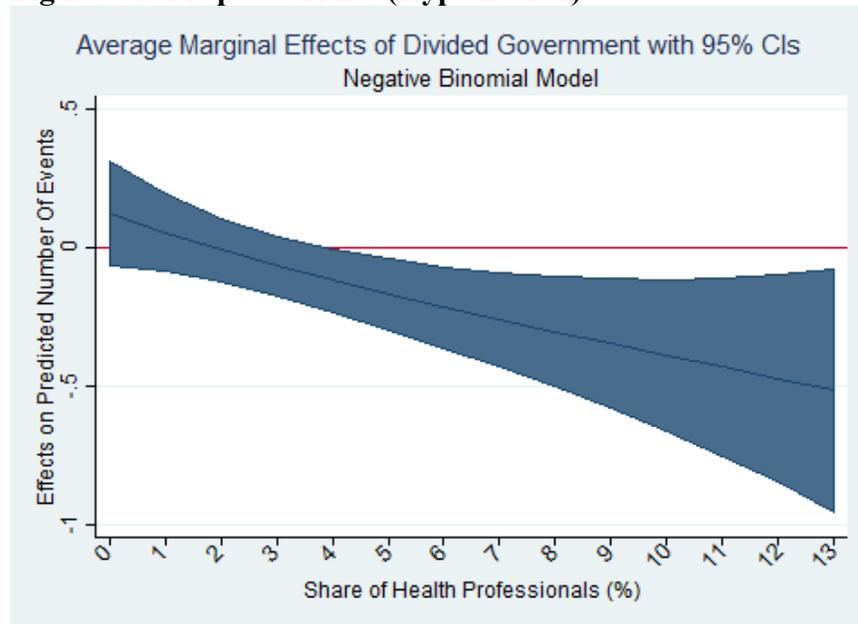
¹⁷² For a discussion of interpreting interaction terms in non-linear models, see Brambor, Clark, and Golder (2006). The change was assessed using Stata's margins command, taking the difference between non-divided government and divided government at increasing levels of *Share of Health Professionals* (Karaca-Mandic, Norton, and Dowd, 2012), holding all other variables at their observed values.

¹⁷³ And, by symmetry, a one-unit increase in the *Share of Health Professionals* leads to a decrease of 0.06 proposed rules when moving from unified to divided government ($p < 0.01$).

| Variable | Proposed Rules (1) | Proposed Rules (2) | Proposed Rules (3) |
|--------------------------------|-----------------------|-----------------------|-----------------------|
| | (0.850) | (0.855) | (0.266) |
| + 2 other agencies | 1.218 | 1.220 | -0.264 |
| | (0.860) | (0.872) | (0.333) |
| + 3 other agencies | 1.381 ** | 1.536 ** | -0.196 |
| | (0.692) | (0.659) | (0.218) |
| <i>Legislative Ideology</i> | -0.528 * | -0.546 * | -0.507 *** |
| | (0.306) | (0.317) | (0.194) |
| <i>Governor Party</i> | 0.065 | 0.107 | 0.153 * |
| | (0.107) | (0.110) | (0.092) |
| <i>Agency Head Appointed</i> | -0.213 | -0.243 | -0.500 ** |
| | (0.404) | (0.412) | (0.198) |
| <i>Budget as % of GSP</i> | 10.548 | 10.579 | -0.489 |
| | (14.641) | (14.424) | (3.390) |
| <i>Health Budget Per 1,000</i> | -0.003 * | -0.004 * | -0.001 |
| | (0.002) | (0.002) | (0.001) |
| <i>Staff Per 1,000</i> | -1.515 ** | -1.480 ** | -0.048 |
| | (0.617) | (0.625) | (0.210) |
| <i>Pertussis Per 100,000</i> | -1.014 ** | -0.901 * | -0.745 |
| | (0.516) | (0.514) | (0.484) |
| <i>Midnight</i> | -0.293 | -0.306 | -0.347 |
| | (0.242) | (0.239) | (0.221) |
| <i>Legislative Salary</i> | -0.031 ** | -0.032 ** | -0.001 |
| | 0.014 | (0.014) | (0.004) |
| <i>Constant</i> | -1.080 | -1.270 | -1.824 *** |
| | (2.563) | (2.520) | (0.633) |
| <i>N</i> | 673 | 673 | 673 |

The unit of analysis is state-years. The table above displays coefficients estimated by negative binomial models; models 1 and 2 employ state and year dummy variables (not shown). Robust standard errors are reported in parentheses. Significance is denoted as follows: * p<0.10; ** p<0.05; *** p<0.01. a. Standalone public health department is the reference category.

Figure 4-1. Proposed Rules (Hypothesis 1)



Overall, institutional arrangements, namely centralizing rulemaking, do not appear to influence bureaucrat-professionals' behavior (refer back to Table 4-1, column 3). Proposed rules are negatively affected by *Share of Health Professionals* during *Divided Government* with or without a Board of Health. See Figures 4-2a and 4-2b on the next page for a graphical interpretation. The magnitude is twice as great in states with a health department (-0.09 rules, $p < 0.10$) than without (-0.04 rules, not significant). The difference in these differences is 0.06 proposed rules, but it is not statistically significant ($p = 0.30$). Additionally, you will note that the coefficient on the interaction between *Share of Health Professionals* and *Divided Government* is no longer significant in this third model (refer back to Table 4-1, column 3). This suggests that the interactive effect is no longer significantly contributing to this model of proposed rules. However, recall that this model does not include state fixed effects, meaning that I am unable to control for potential confounding variables that likely make it difficult to discern the relationship between this interaction effect and proposed rules. In particular, it does not account for health

department centralization, which affects the *Share of Health Professionals*, nor does the inclusion of *Justices Elected* address this issue.¹⁷⁴

Figure 4-2a. Proposed Rules with a Board of Health (Hypothesis 2)

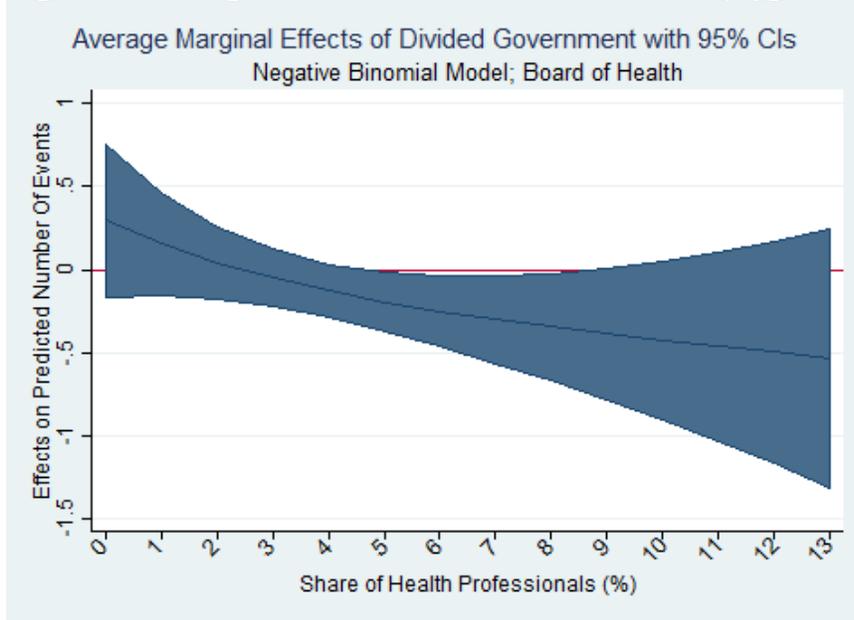
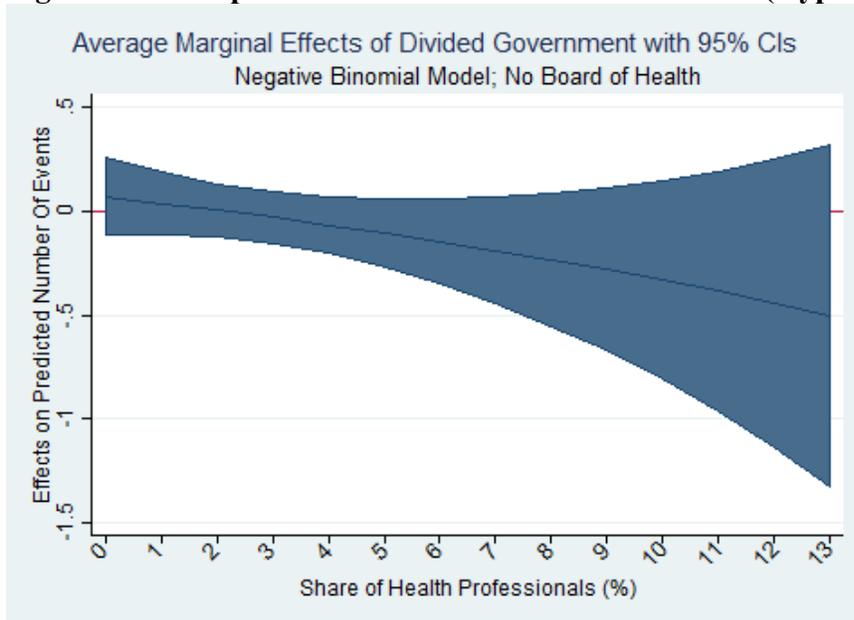


Figure 4-2b. Proposed Rules without a Board of Health (Hypothesis 2)



¹⁷⁴ Specifically, in centralized systems, local health department employees are also state department employees, which would inflate the numbers of health professionals with a state government affiliation.

Several of the control variables also have a significant effect on rulemaking. In model 2, while some *Public Health Configurations* appear significant when compared to a standalone public health department, this significance disappears when examining the marginal effects and holding all other variables at their means. Across all models for *Proposed Rules*, the negative coefficient on *Legislative Ideology* indicates that there is a decline in rule proposals as the legislature becomes more ideologically conservative. Increases in budget, staffing, and pertussis incidence also bring about a decline in rule proposals in models 1 and 2.¹⁷⁵ Legislative professionalism also influences rulemaking: a \$1,000 increase in *Legislator Salary* leads to a 3% decrease in proposed rules. This result holds in models 1 and 2, but is not significant in model 3. Finally, in model 3 only, the presence of a Republican governor increases rule proposals by 17% ($p < 0.10$) and rule proposals decrease by 40% if the governor has the power to appoint the head of the health agency ($p < 0.05$), *ceteris paribus*.

Overall, it appears that professionals are reluctant to propose rules amid heightened political conflict. I found support for my first hypothesis: as the bureaucratic professionalism in an agency increases and there is increased political conflict (i.e., divided government), professionals will propose less childhood immunization rules. However, with respect to the second hypothesis, I fail to reject the null. That is, centralized rulemaking authority does not further depress rule proposals. As I mention above, this null result may have occurred due to the nature of my data: my measure of centralized rulemaking authority does not vary over time and thus, I cannot control for other state-specific factors that affect key variables. One way to remedy this situation is to include a variable that captures departmental centralization, although other

¹⁷⁵ The magnitude of these coefficients is dependent on the scale. For example, if I altered the scale of budget or staffing such that they were per 100,000 rather than 1,000, the size of the coefficient would be barely detectable.

unaccounted-for variables may remain.¹⁷⁶ There may also be issues with my theory, in that I am only examining the rulemaking role of the board of health where other entities, such as a board of education, may also influence rulemaking decisions.

B. Adopted Rules

Turning to adopted rules, we see that neither of the hypotheses are supported. Table 4-2 below presents the results for the models. Unlike the *Proposed Rule* models, the marginal effect of *Share of Health Professionals* when moving to divided government does not have a statistically significant effect on adopted rules and the magnitude is quite small (-0.01). Figure 4-3 provides a graphical representation of the marginal effect of *Divided Government* on adopted rules as *Share of Health Professionals* increases.

Table 4-2. Analysis of State Childhood Immunization Regulation: Adopted Rules (1998 – 2012)

| Variable | Adopted Rules (1) | Adopted Rules (2) | Adopted Rules (3) |
|--|-------------------------|-------------------------|-------------------------|
| <i>Share of Health Professionals</i> | -0.031 (0.044) | -0.021 (0.044) | 0.046 (0.074) |
| <i>Divided Government</i> | -0.138 (0.210) | -0.047 (0.304) | 0.067 (0.414) |
| <i>Divided Government x Share Health Profession.</i> | | -0.032 (0.089) | -0.011 (0.104) |
| <i>Centralized Rulemaking</i> | | | 0.671 * (0.365) |
| <i>Centralized Rulemaking x Share of Health Professionals x Divided Government</i> | | | -0.089 (0.162) |
| <i>Centralized Rulemaking x Share of Health Prof.</i> | | | -0.119 0.104 |
| <i>Centralized Rulemaking x Divided Government</i> | | | -0.194 0.597 |
| <i>Legislative Review</i> | -0.114 (0.369) | -0.110 (0.368) | 0.203 (0.150) |
| <i>Legislature Passed Law</i> | 0.258 (0.265) | 0.256 (0.264) | 0.460 (0.265) |
| <i>Public Health Configuration^a + 1 other agency</i> | 0.307 | 0.317 | 0.298 |

¹⁷⁶ For example, I include the legislative professionalism variable, which does not account for variations in cost of living and related variables.

| Variable | Adopted Rules (1) | Adopted Rules (2) | Adopted Rules (3) |
|--------------------------------|-------------------------|-------------------------|-------------------------|
| | (0.882) | (0.884) | (0.296) |
| + 2 other agencies | 1.147 | 1.166 | -0.51 |
| | (0.862) | (0.869) | (0.341) |
| + 3 other agencies | 0.109 | 0.128 | -0.336 |
| | (0.747) | (0.762) | (0.218) |
| <i>Legislative Ideology</i> | -0.211 | -0.214 | -0.450 ** |
| | (0.321) | (0.322) | (0.189) |
| <i>Governor Party</i> | 0.030 | 0.036 | 0.114 * |
| | (0.107) | (0.110) | (0.096) |
| <i>Agency Head Appointed</i> | -0.619 * | -0.616 * | -0.591 *** |
| | (0.365) | (0.367) | (0.198) |
| <i>Budget as % of GSP</i> | 10.930 | 10.870 | -2.061 |
| | (14.462) | (14.390) | (3.772) |
| <i>Health Budget Per 1,000</i> | -0.002 | -0.002 | -0.001 |
| | (0.002) | (0.002) | (0.001) |
| <i>Staff Per 1,000</i> | -2.336 *** | -2.333 *** | -0.048 |
| | (0.617) | (0.782) | (0.220) |
| <i>Pertussis Per 100,000</i> | 0.007 | 0.013 | -0.001 |
| | (0.213) | (0.232) | (0.278) |
| <i>Midnight</i> | -0.317 | -0.316 | -0.171 |
| | (0.219) | (0.219) | (0.211) |
| <i>Legislative Salary</i> | -0.006 | -0.006 | 0.002 |
| | (0.014) | (0.014) | (0.004) |
| <i>Constant</i> | -0.421 | -0.466 | 1.893 *** |
| | (2.616) | (2.627) | (0.686) |
| <i>N</i> | 673 | 673 | 673 |

The unit of analysis is state-years. The table above displays coefficients estimated by negative binomial models; models 1 and 2 employ state and year dummy variables (not shown). Robust standard errors are reported in parentheses. Significance is denoted as follows: * p<0.10; ** p<0.05; *** p<0.01. a. Standalone public health department is the reference category.

Figure 4-3. Adopted Rules (Hypothesis 1)

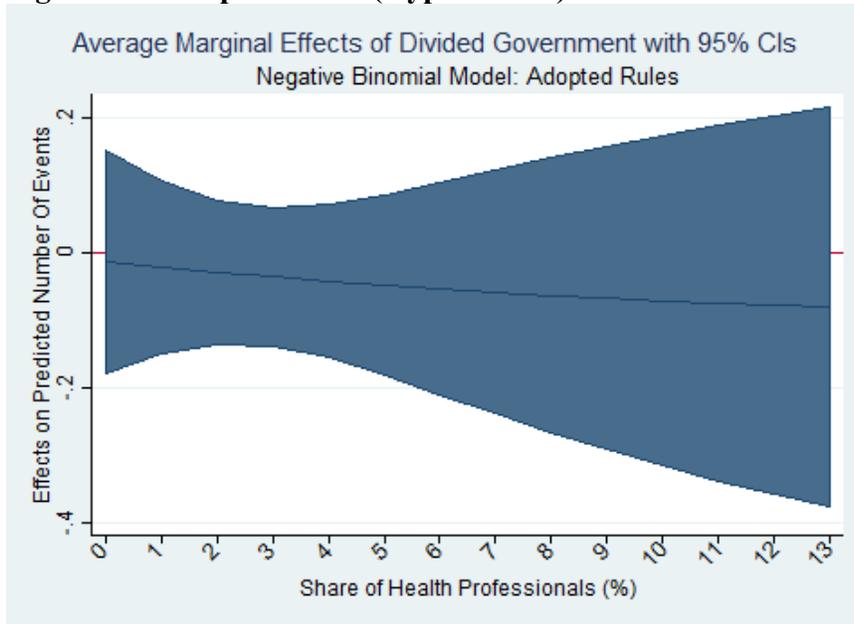


Table 4-2, column 3 displays the results with the triple interaction. When comparing states with and without Boards of Health, the marginal effect of *Divided Government* on rule adoptions as the *Share of Health Professionals* increases is not significant. See Figures 4-4a and 4-4b for a graphical representation of this marginal effect. In contrast to the *Proposed Rules* models, the effect of *Agency Head Appointed* on adopted rules is negative and significant across all three models ($p < 0.10$). The magnitude of this effect is a rulemaking decline of 45% (model 3; $p < 0.01$) or 46% (models 1 and 2; $p < 0.10$). *Staff Per 1,000* (in models 1 and 2) and *Legislative Ideology* (model 3) also have a statistically significant, negative effect on rulemaking, while *Governor Party* has a positive effect (model 3 only), all else equal.

Figure 4-4a. Adopted Rules with a Board of Health (Hypothesis 2)

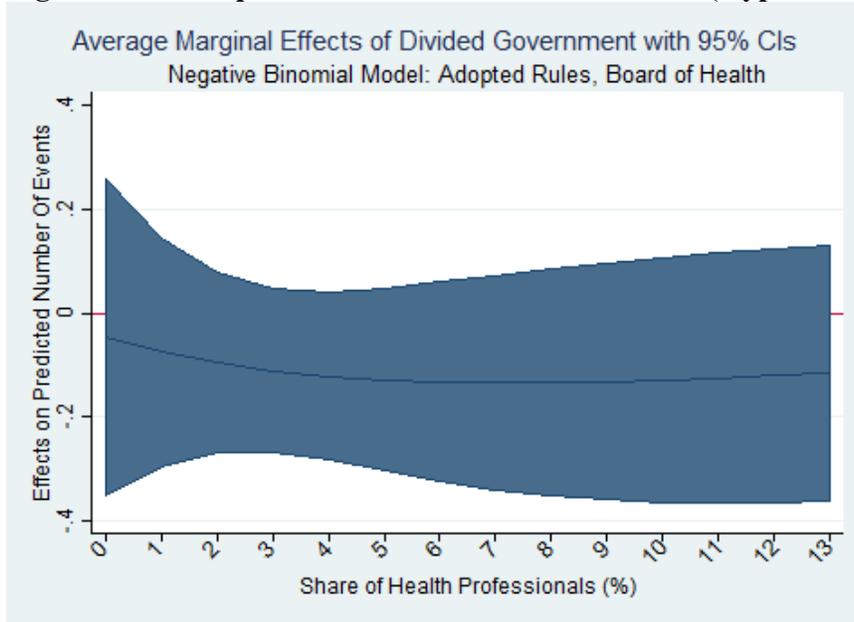
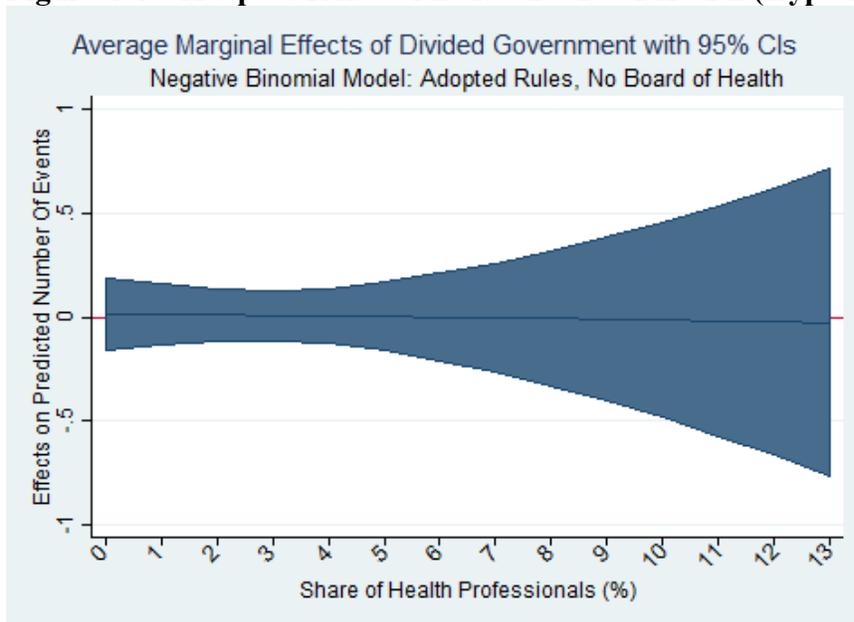


Figure 4-4b. Adopted Rules without a Board of Health (Hypothesis 2)



Based on these results, it appears that rule adoptions are not affected by the response of bureaucratic professionals to political challenges (i.e., divided government). This may indicate an issue with my theory, in that the *proposal* stage is where the risk to reputation occurs. At the adoption stage, the intention to make rules has already been made public through mechanisms

such as a notice-and-comment procedure. Additionally, in states that have legislative oversight of rules, the rule may be on a committee's docket for review. Thus, it is the initial decision to propose a rule that is subject to reputational concerns rather than the later adoption stage. Similarly, a board of health may have more an effect on the rule proposal stage than the adoption stage. Further, the concerns I raise above about theory and measurement with regard to centralized rulemaking apply here as well. Instead, intermediate factors may have more of an effect on adoption, such as notice and comment procedures and practices (e.g., number of comments received, location of notice, etc.) or the ability of the governor to veto a proposed rule.¹⁷⁷

C. Robustness Checks

As a robustness check, I used different model estimation strategies and altered the coding of certain variables in the model. I estimated fixed-effects Poisson models and found that the results from the negative binomial models generally held in terms of magnitude and significance.¹⁷⁸ I also estimated the models using volume, rather than presence, of childhood immunization legislation. The coefficient on this variable was not significant and its presence did not notably affect the magnitude or significance of the results presented above. I also interacted *Legislative Ideology* and *Share of Health Professionals* to assess whether the effect of ideology was more pronounced than partisanship. Again, these results were not significant ($p < 0.05$).¹⁷⁹ To examine the configuration of public health departments further, I also looked at whether it mattered that Medicaid was one of the functions with which public health was combined, as well

¹⁷⁷ Although legislative review is another possibility, I already control for this in my models. The effects of legislative review on rule adoptions are not statistically significant.

¹⁷⁸ See Appendix C, Tables C-3 and C-4.

¹⁷⁹ I evaluated the marginal effects of *Legislative Ideology* and took the difference of these effects at varying levels of *Share of Health Professionals*, comparing moving from the mean of *Share of Health Professionals* to one or two standard deviations above the mean, holding all other variables at their observed values. These differences were not significant.

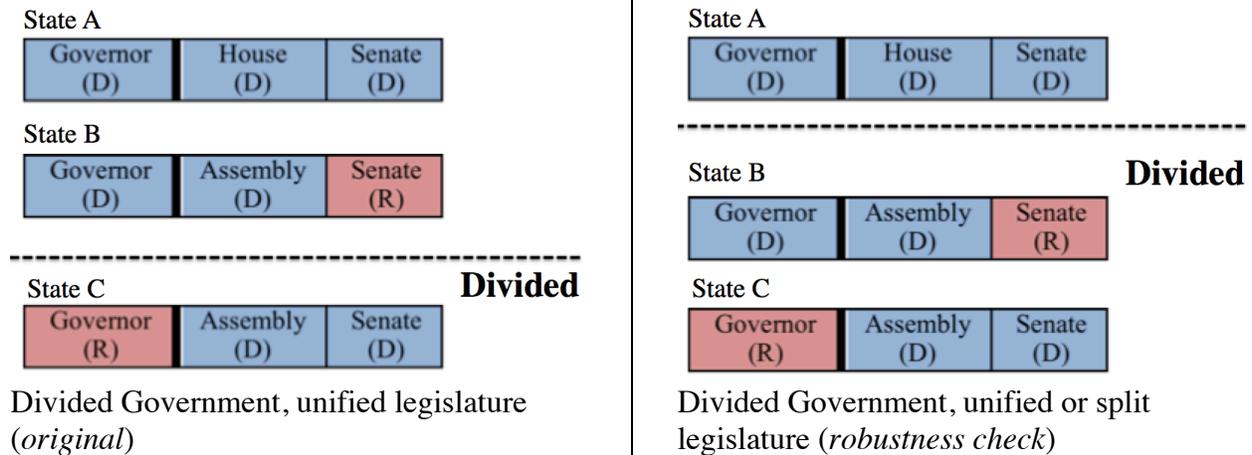
as compared stand-alone health departments to all other configurations (that is, I converted *Public Health Configuration* into a dummy variable). However, these coefficients were significant neither for proposed nor adopted rules.

A second group of robustness checks were conducted to examine how adjusting the definition of divided government affected the results reported herein. To recall, I defined divided government as those instances in which the governor was of one party and both houses of the legislature were of another.¹⁸⁰ However, other scholars have adopted different definitions and have a slightly different focus. For example, rather than emphasizing the role of divided government, other work examines the effect of unified government, in which the governor and both houses are of the same party, in contrast to divided government, in which the party of the governor either controls one or neither of the legislative houses.¹⁸¹ Figure 4-5 below illustrates the different definitions:

¹⁸⁰ I believe my definition of divided government is appropriate for this research because the legislature is able to pass legislation limiting agency discretion under this type of regime. A governor may desire the passage of a certain piece of legislation and will not veto it because it likely includes some aspects that he or she finds favorable to his/her policy agenda. It would be risky for the governor to send the legislation back or start the legislative process over (e.g., due to electoral uncertainty and turnover in the legislature in the next session). Further, the bureaucracy would face a tradeoff in terms of its own policy agenda: a limit to future discretion in order to meet a current policy goal. This difficult situation is unique to divided government, and thus renders bureaucrat-professionals particularly risk averse when it occurs. It is thus important to distinguish divided, unified legislature from divided, split legislature because the latter does not have the same legislative threat (the house of the same party as the governor would be less likely to pass this legislation). This logic is similar to that described in Huber and Shipan, 2002.

¹⁸¹ Recent examples of scholarship that employ this alternative definition include Lillvis and McGrath, 2017, and Boehmke and Shipan, 2015.

Figure 4-5. Comparing Definitions of Divided Government¹⁸²



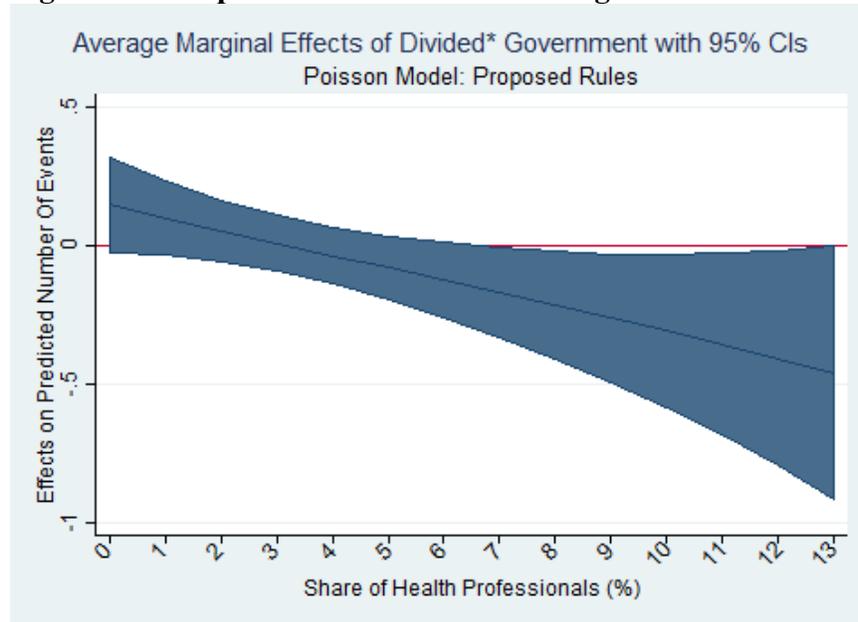
Adopting this alternative definition, I re-estimated the models and found that as a state moves from a unified to a divided government (unified or split legislature) regime, an increase in professionalism again has a negative effect on rulemaking.¹⁸³ Refer to Figure 4-6 on the following page. Switching from a unified to a divided (unified or split legislature) government regime, there is a decrease of 0.11 rules when moving from the mean *Share of Health Professionals* to one standard deviation above the mean ($p < 0.05$) and a decrease of 0.21 proposed rules when moving to two standard deviations above the mean ($p < 0.05$). The results are in the anticipated direction, but are slightly smaller in magnitude and lesser in significance than what was observed when divided government was restricted to a unified legislature, opposite party governor. This is favorable for my argument, as it indicates that the relationship between divided government and share of health professionals is robust to different definitions. It also lends support to the idea that divided government, unified legislature is particularly detrimental to professionals' willingness to propose rules.¹⁸⁴

¹⁸² Note that the definitions remain the same regardless of party, such that State A could be entirely Republican, State B could have a Republican governor and Assembly, etc.

¹⁸³ These models were estimated using Poisson regression as indicated by comparing the AIC and BIC.

¹⁸⁴ A more nuanced interpretation of this result is that there are two potential threats to professionals under the more restricted definition (divided government, unified legislature): an oversight threat AND a legislative threat. In contrast, the legislative threat is less likely when the legislature is split between the two parties. At the federal level,

Figure 4-6. Proposed Rules Estimated Using a Poisson Model



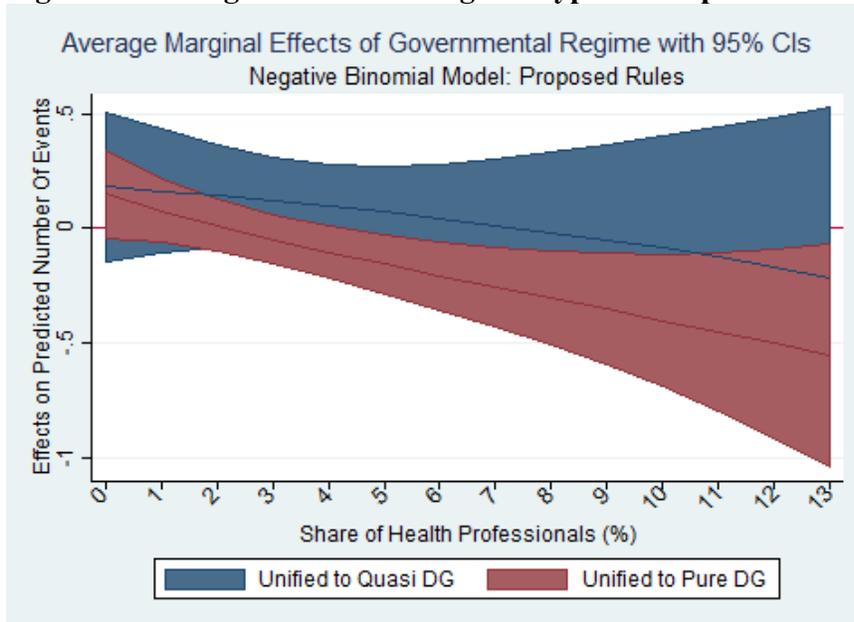
* Here, *Divided Government* is defined as situations in which the governor is of one party and one or both houses of the legislature is of the other.

I also compared the affect of “pure” divided government (i.e., governor of one party and a legislature of another), “quasi” divided government (i.e., a governor and one legislative house of one party, with another legislative house of another party), and unified government (i.e., governor and legislature of the same party) on proposed rules. Mirroring my approach in Chapter 3, I created a trichotomous variable, where unified government is the reference category. Similar to above, I find that the marginal effect of “pure” *Divided Government* on proposed rules is negative and significant as *Share of Health Professionals* increases.¹⁸⁵ However, the effects are not significant when moving from a unified to a “quasi” divided government at higher levels of health professionals. Figure 4-7 below provides a graphical illustration.

Mayhew (2005) finds that this oversight threat is not realized: Congress does not provide more oversight of an opposite-party president. As a final step in this analysis, I will create an indicator variable that takes on the value of 0 for *Unified Government*, 1 for *Divided, Split Legislature*, and 2 for *Divided, Unified Legislature* to assess the extent to which there is an increasing effect.

¹⁸⁵ These effects hold when estimating the model using Poisson regression as well.

Figure 4-7. Marginal Effect of Regime Type on Proposed Rules



A final robustness check results from the fact that the party of the governor may also be a factor in the relationship between divided government, share of health professionals, and rulemaking. To assess this possibility, I created two new variables, *Divided Democrat Governor* and *Divided Republican Governor*. The coefficients on the interaction terms are significantly different at the $p < 0.05$ level.¹⁸⁶ A graph of the marginal effects indicates that, under divided government, the presence of a Republican governor has a more negative effect as the share of health professionals increases (see Figure 4-8 below). This suggests that the governor's party plays a role in immunization rulemaking under these conditions. The reason for this is unclear because vaccination beliefs are not as strongly associated with political party, in contrast to other topics such as global warming (e.g., Kahan, 2014).¹⁸⁷ One possibility is that Republican governors desire weaker public health rules.¹⁸⁸ If we assume that health professionals want to

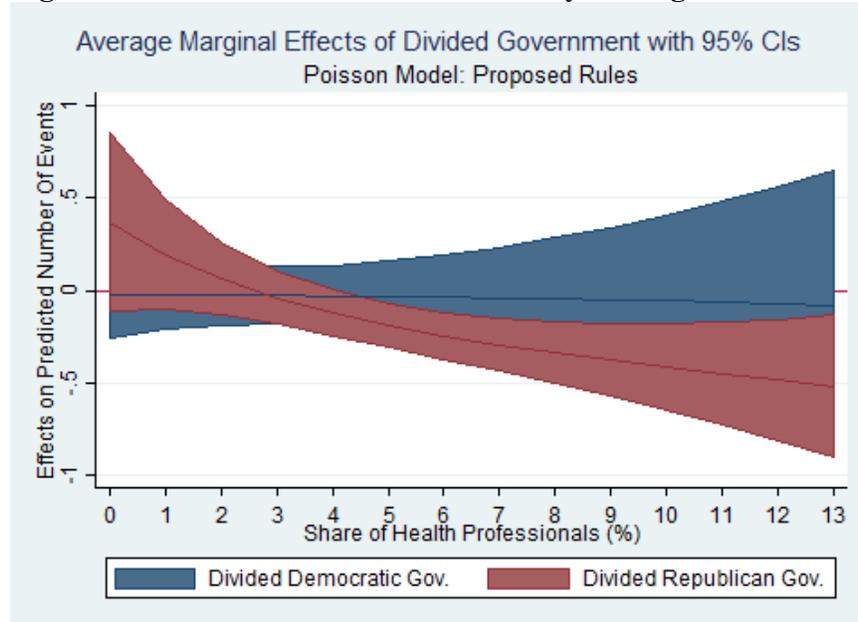
¹⁸⁶ A Poisson model was estimated based on comparing the AIC and BIC with that of the negative binomial model.

¹⁸⁷ In his survey, Kahan found a very slight negative relationship between pro-vaccine assessments and stronger Republican party orientation (2014).

¹⁸⁸ Ideally, I would like to conduct analyses on a larger set of public health rules to assess whether this partisan effect observed in proposed vaccination rules is part of a larger regulatory trend in the public health policy domain.

propose a rule, they first need to consider the internal and external oversight that will occur. As regulatory behavior may be seen as an example of government intrusiveness and a blow to personal liberty, a Republican governor may have to answer to these constituencies more readily, particularly in a primary election when those of more firmly held partisan affiliations vote.

Figure 4-8. The Effects of Governor Party During Divided Government



VI. Discussion

State governments with a greater share of health professionals propose fewer childhood immunization rules under divided government, even when controlling for factors such as legislative ideology, legislative activity, and governor partisanship. The literature has not clearly established the role that divided government plays in rulemaking activity, in that studies have found that it has a negative (Yackee and Yackee, 2009; Potter and Shipan, 2017), a positive (Boushey, 2013), or no statistically significant effect (Boushey and McGrath, 2016), or is negative and sensitive to model specification (O’Connell, 2008). Thus, this study provides a reason why the effects of divided government are mixed. The presence of divided government

moderates the relationship between rulemaking and organization characteristics. That is, divided government will depress the number of rule proposals only when there is a higher proportion of bureaucratic professionals in state government. And, conversely, unified government will increase the number of rule proposals with a higher proportion of bureaucratic professionals.

However, the question remains: why are professionals responding in this manner? It may be difficult for bureaucrat-professionals to know where the governor stands on the issue, as governors have been known to express neutral opinions (e.g., Gov. Shumlin of Vermont) or flip-flop (e.g., Gov. Perry of Texas, Gov. Christie of New Jersey, and, to some extent, Gov. Brown in California) on policy stances with regard to childhood vaccination.¹⁸⁹ On the other hand, we may have expected professionals to behave differently, where divided government would be seen as a rulemaking opportunity rather than a threat. In these situations, the bureaucracy could move the policy ideologically closer to the governor—where the policy will remain because it can withstand legislation to overturn it due to the governor’s veto power. Further research needs to be undertaken to better understand the motivation of these professionals: do they prefer the scrutiny that unified government offers when making policy, are they more risk averse than non-health professionals in their tolerance for rulemaking failure, or is this finding conditional on some other factor?

The policy implications and recommendations hinge on these motivations. Are health professionals overreacting to the threat of divided government? If they need better political intelligence, professional associations may be able to invest in this resource on behalf of their government members. If they believe that the rule sticks when subject to more scrutiny, there are

¹⁸⁹ Interviewee comments supported this characterization of the Vermont and New Jersey governors. Governor Perry issued an Executive Order in 2007 mandating the HPV vaccine. The Texas legislature passed a law that undid the mandate and Perry did not attempt to veto it. Governor Brown previously supported less rigorous exemption policies by issuing a signing statement providing protections for religious individuals when prior legislation passed in 2012, but he did not interfere with the intent of the stricter 2015 legislation.

ways to increase the accountability and transparency of state health departments, such as accreditation.¹⁹⁰ Admittedly, this assumes that more rules are normatively better than less rules. In terms of infectious disease control, there are many different policy levers that can be employed to improve childhood immunization rates. However, these strategies vary in effectiveness (Bradford and Mandich, 2015) and perhaps a state with fewer rules was able to advance policy change more effectively with one rule rather than several incremental rules spread out over time.

This study has several limitations. First, while I suggest that the divided government result exists based on reputation concerns, it is important to recognize that the lack of profession enforcement power may also be an underlying cause. However, as bureaucrat-professionals are in government precisely because they care about policy, I believe that the former reason is the more probable one. Second, it may be the case that differences in legislative and bureaucratic capacity also play a role in a state's rulemaking volume. Boushey and McGrath (2016) found that larger disparities in expertise between state-level executive and legislative branches, operationalized as differences in salary, lead to increased rulemaking. Thus, an expertise gap that is in favor of the bureaucrat may help bureaucrat-professionals overcome their rulemaking reluctance during divided government. Third, while I examine the effects of the presence of a board of health on rulemaking, I do not consider the influence of other relevant institutions such as a board of education.¹⁹¹ Finally, it may be difficult to generalize the findings of this study

¹⁹⁰ The Public Health Accreditation Board (PHAB) began accrediting state Departments of Health in 2013: <http://www.phaboard.org/wp-content/uploads/Eleven-Public-Health-Departments-First-to-Achieve-Accreditation-111.pdf> Accessed 8/26/15.

¹⁹¹ Seven percent of the policies originate from a department or board of education.

across different policy domains that do not share the same bureaucrat-professional features as childhood immunization policy.¹⁹²

VII. Conclusion

In 2014, at the time of the promulgated rule mentioned in the introduction, Michigan's governor was a Republican and its legislature was under unified Republican control. Michigan also has had a higher percentage of health professionals working in state government in the recent past.¹⁹³ The rule was promulgated to address the state's high immunization "opt out," or exemption rate, which was noted by then-Director of the Michigan Department of Community Health, Jim Haveman, prior to his departure.¹⁹⁴ Would rulemaking have taken place had Michigan's government been divided? My results suggest that it would have been less likely. A second question is whether such policies affect the spread of infectious disease in states like Michigan. In the highly publicized measles outbreak of 2014-2015, Majumder and colleagues indicated that low vaccination rates were the likely culprit (2015). However, factors such as policy implementation and geographic clustering of exemptors also influence whether state policies can prevent a rise in infectious diseases (for a review, see Wang *et al.*, 2014).

This chapter makes three contributions to the study of bureaucratic behavior. First, I leverage existing theories to advance a new theory of bureaucratic professionalism, where agencies with a greater share of professionals are constrained not just by politicians, but also potentially by a desire to protect policy authority during uncertain political times. Second, my

¹⁹² For example, a policy area that is less contentious, relies less on science-based expertise, or is not comprised of bureaucrats with distinct professional identities.

¹⁹³ As of September 2016, IPUMS data was unavailable for 2014. To get a general sense for the extent of bureaucratic professionalism, I examined the salary of the head of the health agency.

¹⁹⁴ Pluta, Rick. "Health director calls for reluctant parents to get vaccine counseling." 5:33pm, 9/11/14 <http://michiganradio.org/post/health-director-calls-reluctant-parents-get-vaccine-counseling>. Accessed on 9/12/14. The possibility of addressing the opt-out rate through the rulemaking process was mentioned in this radio story which aired on September 11, 2014—the day before Haveman stepped down.

study is also one of the first to examine the relationship between legislative activity and rulemaking activity within a specific policy domain over a number of years, which permits a closer causal examination of bureaucratic behavior. Third, it looks to agency variation in characteristics such as professionalism as an explanation, rather than a control. Finally, I am positioning myself between the bureaucratic autonomy and political control literatures, utilizing variation across states to examine the conditions under which bureaucratic action is limited or encouraged in an important policy arena.

While some aspects of bureaucratic professionalism galvanize policy implementation, others inhibit implementation when the risks to the profession outweigh the short-term policy rewards. Overall, I find that states with a greater share of health professionals in government propose fewer rules during divided government. This effect is reversed under unified government, where a greater share of health professionals leads to more rule proposals. Thus, the gains from professionalism discussed in Chapter 2—expertise, information-sharing, and networks—are not enough to overcome additional considerations in a tumultuous political climate. Bureaucratic professionals will limit behaviors that have the potential to damage their profession's reputation and, in turn, hinder their ability to use their professional autonomy to implement policies in the long run. In the next chapter, I examine another type of policy implementation, program implementation, and examine the effects of bureaucratic professionalism on program implementation in Chapter 6.

CHAPTER 5

Planning, Executing, and Evaluating the Michigan Waiver Rule: A Public Health Perspective

As mentioned in Chapter 4, rules can lay the groundwork for the further implementation of law. Following the finalization of a rule, bureaucrat-professionals at the local level may be charged with delivering programs, enforcing regulations, levying sanctions, and other aspects put into place by the rule. The purpose of this chapter is to describe how local bureaucrat-professionals implement a state rule. In particular, how do they use their discretion, and what internal (i.e., departmental) considerations affect the implementation of the rule? Additionally, it provides an illustration of the various implementation steps that may follow rulemaking.¹⁹⁵ This chapter focuses on one specific rule, the 2015 Michigan immunization waiver rule, where parents seeking to exempt their child from vaccination must first receive education at their local health department (LHD). Of note, this waiver rule *did not* result from a recent bill that the state legislature passed into law. This serves as an illustration that bureaucrats can, under certain conditions, use their autonomy to make policy.

As I have chosen to address one particular policy in one particular state, results are not generalizable to all states. However, states that are similar to Michigan may be able to glean some useful information about this particular policy approach. That is, states that are decentralized, have vaccine exemption laws that are deemed ineffective (Bradford and Mandich,

¹⁹⁵ Although, note that program implementation doesn't necessarily follow rulemaking (e.g., it may follow a statute, a financial award from a federal grantmaking program, etc.)

2015), are concerned about communicable disease rates, and whose parents have myriad reasons for their vaccine hesitancy.

This chapter proceeds as follows. First, I provide an accounting of exemption policies across the U.S. to demonstrate the uniqueness of Michigan's approach. Second, I adapt a theoretical framework using political science literature on policy formation and implementation to structure my data collection. Third, I conduct interviews with local and state actors involved in rule implementation to understand how they planned for, executed, and evaluated the waiver education program. In the results section, I contextualize these interviews with primary source documents and organize my findings by framework element. Finally, I discuss how the findings lead to questions about rule implementation by bureaucrat-professionals at the local level. Following the conclusion, Chapter 6 takes up these open questions and considers the external constraints faced by local-level bureaucrat-professionals in implementing a state rule.

I. Exemption Policies and the Michigan Model

State childhood vaccine politics has been quite controversial in recent years due to disagreement about whether, as well as which, vaccines should be compulsory for school entry.¹⁹⁶ Some of this disagreement has emerged following perceived vaccine safety threats. First, an eventually-retracted article in the *Lancet* wrongly claimed that vaccines were associated with autism. Second, there was the notion that thimerosal, an ethyl mercury-based vaccine preservative, could be unsafe. Although no link has been found between thimerosal and autism, groups such as the American Academy of Pediatrics pushed to rid vaccines of the

¹⁹⁶ Again, controversy about vaccine policies is not new. As heretofore acknowledged, vaccine opposition has existed almost since the advent of vaccines (Colgrove, 2006).

preservative.¹⁹⁷ Disagreement also erupted when state legislatures began considering bills that would mandate that school children be immunized against HPV, which is sexually transmitted. These events have caused a minority of parents to call vaccine safety, and what some may perceive as draconian child vaccine policies, into question.

On the other hand, studies have shown that state vaccination laws have a major impact on the health of the population and indicate that the real risk is in not vaccinating children. Noteworthy declines in vaccine-preventable disease incidence followed the adoption of state school entry immunization mandates (CDC, 1999; Hinman *et al.*, 2011). Conversely, nonmedical exemption laws, in which individuals can opt out of vaccination for reasons of religious or personal belief, are associated with an increase in vaccine-preventable diseases (Salmon *et al.*, 1999). Research by Majumder and colleagues found that nonmedical exemptions were a factor in the 2014 measles outbreak at a California theme park (2015). Additionally, local-level clustering of exempt children is a particular problem, as the risk of outbreaks and incidence of vaccine-preventable disease is higher in these communities (see Wang *et al.*, 2014 for a review). In this political and public health context, states make policies to address communicable disease threats to the school-aged population.

Based on 2015 data, the following 19 states grant philosophical exemptions for school-aged children: Arizona, Arkansas, Colorado, California, Idaho, Louisiana, Maine, Michigan, Minnesota, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Texas, Utah, Vermont, Washington, and Wisconsin (NCSL).^{198, 199, 200} Figure 5-1 below provides an illustration. Of

¹⁹⁷ CDC (2015). Thimerosal in Vaccines. Available at: <https://www.cdc.gov/vaccinesafety/concerns/thimerosal/> (Accessed 04/19/17).

¹⁹⁸ Some states are more permissive in granting religious exemptions (see Lillvis, Kirkland, and Frick, 2014).

¹⁹⁹ California eliminated its philosophical exemption effective January 2016 and Vermont eliminated its philosophical exemption effective July 2016.

²⁰⁰ Of these, 11 have decentralized health departments (Arizona, Colorado, California, Idaho, Michigan, Minnesota, North Dakota, Ohio, Oregon, Texas, and Utah) (ASTHO, 2012b, p. 14).

these, eight require parental education as a condition of receiving a philosophical exemption: Arizona, Arkansas, California, Michigan, Oregon, Utah, Vermont, and Washington (CDC, 2015). These states can be subdivided based on who is providing the education: health care providers (three states: California, Oregon, and Washington), or the health department (six states: Arizona, Arkansas, Michigan, Oregon, Utah and Vermont) (CDC, 2015). Of this latter category, only Michigan places responsibility of providing mandatory education within the domain of the local health departments.

Below, I briefly describe how the five other states approach their health department-provided education. While all of the states require parents to receive information or education, the method used to provide this information ranges from a brief statement to an online module to face-to-face sessions:

- In Arizona, parents must sign a statement indicating that “the parent or guardian has received information about immunizations provided by the department of health services and understands the risks and benefits of immunizations and the potential risks of nonimmunization.”²⁰¹ This information consists of vaccine-specific statements on a one-page form on the department’s website.²⁰² Local health departments may provide face-to-face instruction, but are not required to do so.²⁰³

²⁰¹ Arizona State Legislature, 15-873. Available at: <http://www.azleg.state.az.us/FormatDocument.asp?inDoc=/ars/15/00873.htm&Title=15&DocType=ARS> Accessed 6/3/16

²⁰² Arizona Department of Health Services. Personal Beliefs Exemption Form. Available at: <http://www.azdhs.gov/documents/preparedness/epidemiology-disease-control/immunization/school-childcare/personal-belief-exemption.pdf> (Accessed 3/20/17) And, to view how the form looked prior to the changes in 2016: <http://web.archive.org/web/20160327162502/http://www.azdhs.gov/documents/preparedness/epidemiology-disease-control/immunization/school-childcare/personal-belief-exemption.pdf>

²⁰³ Personal communication from Dana Goodloe, Chief, Immunization Program Office, Arizona Department of Health Services. Received 3/21/17.

- Arkansas developed an educational packet for parents, which covers “the risks and benefits of vaccination.”²⁰⁴ In particular, the packet includes the Vaccine Information Statements, which parents are required to read prior to receiving an exemption.²⁰⁵
- In Oregon, parents can either hand in a signed Vaccine Education Certificate from their physician saying that they provided the parent with information regarding the risks of disease and the benefits of vaccination, or a certificate indicating that the parent completed an online education module from the state’s immunization program to exempt their child from school.²⁰⁶
- In Utah, local health departments provide the form to parents. Parents receive “a statement printed on the form and drafted by the Department of Health stating the department's position regarding the benefits of immunization.”²⁰⁷ Some local health departments may have in-person sessions and some charge a fee for this service.²⁰⁸
- Vermont requires that parents receive “evidence-based material” indicating the risks of vaccine side effects and the risks to their child and others of not receiving all the vaccines on the vaccine schedule.²⁰⁹

²⁰⁴ Arkansas code available at: <http://law.justia.com/codes/arkansas/2010/title-6/subtitle-2/chapter-18/subchapter-7/6-18-702> Accessed 6/3/16

²⁰⁵ Personal communication from Jene’ Wyatt, Assessment Coordinator at the Arkansas Department of Health. Sent on 10/18/16.

²⁰⁶ Oregon Immunization Program. Nonmedical Vaccine Exemptions. Available at: <https://public.health.oregon.gov/PreventionWellness/VaccinesImmunization/GettingImmunized/Pages/non-medical-exemption.aspx> (Accessed 3/20/17)

²⁰⁷ Utah Code. 53A-11-302.5. Personal belief immunization exemption.

²⁰⁸ Personal communication from Jessica McClellan, Epidemiologist with the Utah Department of Health Immunization Program. Sent 3/20/17. Ms. McClellan also noted that the Utah legislature just sent a new law to the governor on March 17th that would require parental education by going to the LHD or completing an online module. See: <http://le.utah.gov/~2017/bills/static/HB0308.html> (Accessed 3/20/17). Whether LHDs have in-person meetings varies by LHD: according to the customer service representative at the Salt Lake City County Health Department, they only provide a form and parents do not have a face-to-face meeting (Personal communication, 3/21/17).

²⁰⁹ Currently, Vermont provides its education for religious waivers on-line. Personal communication from Christine Finley, Immunization Program Manager, State of Vermont. Statute available at: <http://legislature.vermont.gov/statutes/section/18/021/01122> Accessed 6/30/16. According to Adopted Rule # 12-041, Vermont required those with philosophical objections to receive information online prior to obtaining an

more burdensome exemption procedures are associated with a reduction in exemption rates (e.g., Rota *et al.*, 2001; Omer *et al.*, 2012; Bradford and Mandich, 2015). Michigan’s approach of tackling high exemption rates through an “inconvenience” policy appears to be in line with these research findings (Navin and Largent, N.d). Further, stringent exemption policies are associated with lower communicable disease incidence (Omer *et al.*, 2006).²¹² The above examples of health department education also illustrate the importance of looking beyond *whether* there is an education requirement to ascertain *how* the education is being delivered, as states vary in the intensity and consistency of the education provided. This chapter explores how LHDs in Michigan plan, execute, and evaluate their immunization waiver education efforts.

In the 2013-2014 school year, Michigan had one of the highest kindergarten nonmedical exemption rates in the country, ranking fourth among states that reported exemption data to the CDC (Seither *et al.*, 2014). Meanwhile, media and public health reports indicated that pertussis, a vaccine-preventable disease, has struck several Michigan communities known for high exemption rates, such as Traverse City.²¹³ As recounted in Chapter 4, the Michigan Department of Community Health published a proposed rule change on November 1, 2014 to decrease exemption rates in the state. The rule was finalized on December 16 and stated: “Each nonmedical exemption [...] shall be certified by the local health department that the individual received education on the risks of not receiving the vaccines being waived and the benefits of vaccination to the individual and the community.”^{214, 215} This rule was not immediately preceded

²¹² In last year’s highly publicized measles outbreak, low vaccination rates in California—a state that, until recently, had a broad exemption policy—were the likely culprit (Majumder *et al.*, 2015).

²¹³ Parker, Rosemary. “Vaccination waivers put hundreds of Michigan communities at risk of disease outbreaks.” *MLive* December 10, 2014. Available at: http://www.mlive.com/news/index.ssf/2014/12/michigan_vaccinations_risk_imm.html (Accessed 4/30/16)

²¹⁴ State of Michigan. Proposed rule documentation available at: http://www.michigan.gov/documents/lara/MR19_110114_473058_7.pdf. Final rule documentation available in the Michigan Register Issue No. 24 – 2014, Published January 15, 2015 (see p. 113).

by legislation that mandated immunization education.²¹⁶ That is, it did not follow a recent statutory change. However, factors such as policy implementation and geographic clustering of exemptors also influence whether state policies can prevent a rise in infectious diseases. Thus, while Michigan's policy change aligns with research evidence on disease prevention, local level factors may interfere with policy success, as defined by a county's exemption rate.

II. Policy Implementation: Theoretical Frameworks

Studying policy implementation is challenging due to its multifaceted nature. Following the creation or alteration of a law, various government entities marshal resources, lay out processes, distribute tasks, carry out programs, evaluate the effectiveness of the policy, and make adjustments based on successes and failures. However, these activities are not conducted in isolation: interest groups and individuals may support or fight policy change; the problem the policy sought to address may no longer be a priority; or political support may fluctuate based on elections and/or appointments. Given the difficulty of applying one theory to understanding all of these aspects, I outline several theoretical perspectives that will help guide the ensuing analyses of the Michigan waiver rule.²¹⁷

I define implementation as those steps that connect a policy's goals with objectives and, ideally, a desired outcome.²¹⁸ We can understand policy implementation by placing it within a

²¹⁵ These restrictions are not placed on children with a medical condition that necessitates their exemption from vaccination.

²¹⁶ Recent legislative efforts in Michigan will be described in greater detail in Chapter 6.

²¹⁷ The application of multiple theoretical perspectives to understand health policy implementation has been undertaken by other scholars. For example, Oberlander argued that "multiple theoretical lenses are necessary" for understanding the implementation of Medicare (2003), while Jones adopted a "poly-theoretical approach" in his study of the implementation of the state health insurance exchanges (p. 23, 2014).

²¹⁸ This definition borrows from the discussion of implementation in Pressman and Wildavsky, 1984, p. xxi-xxiii. I define a goal as the overall purpose of an activity, while objectives are specific aspects within the goal. Strategies and tactics are put in place to achieve the objectives. The end result is the particular outcome that is attained (Hatry, 1999).

modified “structure, process, outcome” framework that has proven useful in the study of health services (Donabedian, 1966; Wyszewianski, 2009; see also, Starfield, 1998, for her adaptation of the model to health services systems). *Structure* refers to resources that are invested in the implementation of a public health regulation. This may include departmental capacity (e.g., funding and staffing), as well as the legal authority conveyed by the rule and direction as to how to wield this authority. *Process* refers to the processes employed to make use of these resources; in this instance it captures the program, incentive, and regulatory strategies undertaken by the local health department.²¹⁹ Note that each of these strategies has subcomponents, such as partnerships that facilitate program delivery. Additionally, these strategies may be linked together to produce an outcome (e.g., a rule that lays out the details of a particular program, or a partnership that provides public health education opportunities). *Outcome* refers to the end results of these strategies, which are measured by public health indicators such as the waiver rate.²²⁰ Figure 5-2 represents the above information in graphic form.

Figure 5-2. Examining Policy Implementation: Structure, Process, and Outcomes



Additionally, there is a two-way relationship between these components. Outcomes one year may influence processes the next through changes to programs or the development of new partnerships. Outcomes may also affect structure: if the level of change is less than anticipated,

²¹⁹ Pressman and Wildavsky (1984) would argue that implementation is limited to the process stage above, whereas the structure elements represent initial conditions. But, how a department chooses to proceed with a program likely depends on the structure upon which the program is built. Therefore, I include these elements in my study of implementation.

²²⁰ In Chapter 6, I examine the context in which these structures, processes, and outcomes reside. This context may consist of public support, as well as legislative and judicial threats to the policy such as introduced bills and pending court cases.

health departments may be able to request additional resources. And, as processes change, the structure will follow suit, such as retaining staff specializing in a particular intervention.

These components are also present in other chapters of this dissertation. Recall that legal authority was identified in Chapter 2 as a key resource that professionals cultivate and protect. As discussed in Chapters 2, 3, and 4, professionals can be seen as an important aspect of agency capacity. Due to their expertise, access to information and networks, and self-regulation, professionals have the potential to enhance departmental staff capacity in terms of their ability to develop strategies and complete tasks to meet agency goals. However, as professionalism is linked to an external body (i.e., a profession), I do not discuss in depth how bureaucratic professionalism affects program implementation in this chapter. Instead, I take up this theme in Chapter 6, where I consider how external considerations influence the behavior of professionals.

A. Structure

I first direct my attention to the structural elements of implementation: those legal and organizational resources that are present within the entities responsible for implementation. Additionally, population characteristics are a key element because the constituency served may affect the implementation approach.²²¹

i. Objective and Subjective Legal Authority

Legal authority may be granted to an entity charged with implementing policy. However, the perception of this implementation authority may vary depending on the implementer. Namely, there may be a difference between the objective legal environment (i.e., presence or absence of a specific law) as well as the subjective legal environment (i.e., whether the implementers perceive that they have legal obligations). The gaps between objective and

²²¹ Wood and Bohte (2004) employ the term “structure” to refer to the extent of an agency’s autonomy in terms of the scope of its authority, agency leadership, and budget. Thus, there are some similarities between their approach and the framework elements presented here.

subjective legal authority have been noted in research examining physician responses to suspected prenatal substance abuse (Mendez *et al.*, 2003) and public health and emergency management professionals' behavior (Jacobson *et al.*, 2012).

Discretion is a key aspect of implementation authority. Whereas implementation authority gives an entity, such as a local health department, the power to initiate or change policy implementation, the ability of the entity to customize implementation depends on the amount of discretion it has been granted.²²² Rulemaking puts constraints on program implementers by potentially “identifying what they can know, how they can learn it, when they must act, what they must do...” (Kerwin, 2003, p. 32). The extent of discretion can have an impact on policy effectiveness. For example, a study by McCann (2009) examined how different forms of discretion affect the implementation of state newborn screening policy. McCann found that policies which allowed for greater practitioner judgment lead to more effective implementation (i.e., the state was less likely to under-test for newborn conditions in relation to what is stipulated in state law). The subject of this study, the Michigan waiver education rule, appears to give local health departments discretion to provide waiver education as they see fit, however local health department staff may or may not perceive themselves as having this discretion.

ii. Departmental Capacity

By departmental capacity, I simply mean the organizational resources an entity brings to a particular program implementation process. These resources are well-discussed in the literature and apparent when one considers what is needed to implement a policy (see Oliver, 2006 for a

²²² There is a rich literature that discusses the strategic decisions made by policymakers about how much discretion to grant policy implementers. For example, Epstein and O'Halloran (1999) find that, at the federal level, Congress increasingly provides discretion when their policy preferences align (i.e., unified government) and when it can take advantage of agency expertise. Similarly, Huber and Shipan (2002) find that state legislatures increasingly provide discretion to agencies when: their policy preferences align with an agency, the legislature is less well-resourced (e.g., does not have the expertise to write detailed statutes providing less discretion), and there are *ex post* oversight options (e.g., a legislative veto).

review). For example, Chase lists the following resources in his work on implementation assessment factors: money, personnel, space, and supplies and technical equipment (1979). Wilson includes capital (funding) and labor (personnel) as essential elements for organizational maintenance, of which I assume implementation responsibilities are a part (1989).²²³ Such resources may be limited at the local level, where local health departments may be expected to stretch their staff and dollars to meet state requirements.

iii. Population Characteristics

The population being served also has consequences for implementation. Schneider and Ingram (1993) describe how policy tools are selected to address the needs of a particular target population. Politically powerful, positively constructed groups receive interventions, such as education, that are respectful of the group. In contrast, politically weak, negatively constructed groups receive interventions in a disrespectful manner, such as through coercion or by force (Schneider and Ingram, 1993). Prior experiences with governmental programs also influences the political power perceived by potential participants (e.g., Soss, 1999; Mettler and Welsh, 2004).²²⁴ Programs may be designed based on the needs *and* perceived political power of the target population.

²²³ Wilson also includes political support as part of organizational maintenance, although in my framework I place this within the political environment, as it is bestowed upon the entity from an external source.

²²⁴ To illustrate, Soss (1999) found that the different designs employed by a public assistance program, Aid to Families with Dependent Children (AFDC), and a social insurance program, Social Security Disability Insurance (SSDI), lead clients to develop diverging views of their abilities to influence change and for the government to be responsive to their needs. Specifically, SSDI participants believed that individual and collective actions can influence government, and that the government listens to people like them. In contrast, AFDC participants believed they were at the whims of government and did not feel that they could effectively influence government. These views have spill-over effects, as participants extrapolate their program experiences to government as a whole.

B. Process

Now that I have discussed structural elements, I will turn to the processes, or tools, that utilize these resources.²²⁵ Governments can intervene in various ways, such as through regulations, financial incentives, and educational programs (Hood, 1983; O’Hare, 1989; Salamon and Lund, 1989). The given tool in this instance, education, has several limitations worth noting. Generally, the objective of education is to provide an individual with knowledge so that he or she can change his or her behavior. The premise is that individuals who make a “wrong” choice (from the public health perspective) are either unaware or misinformed about the choices they are making. However, research has shown that it is exceedingly difficult to combat misinformation with corrective information in order to bring about behavior change (see Nyhan *et al.*, 2014 and Nyhan and Reifler, 2015 for examples from the vaccine context; but see Horne *et al.*, 2015). While it appears unlikely that education will have an effect on those with strong beliefs, it may have the potential to affect the uninformed or indifferent.

C. Outcome

Outcomes represent the end goals of the policy: did the indicators of interest move in the desired direction as a result of the policy change, and how do we know? This latter question pertains to evaluation of the policy tool deployed. Such interventions, according to management teachings, may follow a “plan-do-check-act” or “plan-do-study-act” process (for a systematic review, see Taylor *et al.*, 2014). That is, when a program is implemented, data is collected and analyzed to determine whether the program should be adapted.²²⁶ Weimer and Vining (2010) note that a data collection requirement can be valuable from both an evaluative and a political

²²⁵ Wood and Bohte (2004) limit their examination of “process” to particular procedures (i.e., rulemaking and adjudication). However, broadly speaking, both are implementation process elements and are thus largely consistent with the framework presented herein.

²²⁶ For a discussion of the distinction between evaluation and implementation, see Browne and Wildavsky (1983).

perspective, as it ensures that data will be collected for ongoing measurement and serves as a reminder that politicians and bureaucratic leaders may be viewing these indicators. Thus, evaluation of program aspects helps identify whether the policy tool is having the desired policy and/or political affect, as well as areas for improvement.

IV. Methods

To learn how local bureaucrat-professionals implement the Michigan waiver rule, I conducted interviews with LHD and state employees. In this section, I describe my interview methods and other primary source data collection. I also provide descriptive statistics of those interviewed.

A. Interview Data

I conducted interviews with the individuals responsible for implementing the waiver policy in a representative sample of Michigan's 45 local health departments (LHDs). I separated the LHDs into categories based on literature that indicates white population, educational attainment, and income level affects waiver rates (e.g., Yang *et al.*, 2016; Smith, Chu, and Barker, 2004).²²⁷ I also added size of the population served by the LHD based on interviewee comments during pilot interviews.²²⁸ This yields a potential 14 total LHD representative groups, in addition to two pilot LHDs, for a total of 16 LHDs included in this study (see Table 5-1). If staff from an LHD declined to participate or did not respond, I replaced the LHD with another

²²⁷ Yang *et al.*'s 2016 study examined exemption rates across California, while Smith, Chu, and Barker's 2004 study consisted of a nationally-representative sample.

²²⁸ Health departments were placed into categories based on data from American Community Survey 5-year estimates, 2014 https://factfinder.census.gov/faces/nav/jsf/pages/download_center.xhtml
Specific data elements utilized: Total Population; Median Income in the Past 12 Months (in 2014 Inflation-adjusted dollars); Educational Attainment (Bachelor's Degree, age 25+); White Race

department within the same group.²²⁹ Subjects were recruited primarily via email and interviews took place either in person or over the phone. Interviews were conducted using a semi-structured interview guide (please see Appendix D, Document D-1 and Appendix E, Document E-1). I attempted to interview more than one individual in each of the LHDs to corroborate responses. Interviews began in June of 2016 and commenced in March of 2017. The average interview duration was about 32 minutes and ranged from about 14 minutes to about 80 minutes.²³⁰ Interviews were digitally recorded and transcribed verbatim.²³¹ Transcripts were imported into Dedoose, which is qualitative analysis software that assists in the coding and analysis of themes. In the initial pass, I coded the interviews based on the theoretical framework detailed above in terms of structure, process, and outcome. I then coded for sub-themes in subsequent passes through the interview data. Again, the purpose of the interviews was to gain an understanding of how LHDs implemented the waiver education rule. To that end, I asked questions about how LHDs planned for the roll-out of the waiver education sessions, the process that they used to deliver the sessions, and any evaluation efforts they undertook to examine the impact of the new rule.

For this chapter, I interviewed 32 individuals across 16 health departments, as well as two MDHHS employees. I was able to interview multiple individuals from nine health departments, and one from seven health departments.²³² As part of the interview, I screened individuals for their involvement implementing the waiver rule; all interviewees had experience implementing the rule.

²²⁹ Two invited LHDs did not participate, meaning that my health department response rate was 16 of 18 LHDs (89%).

²³⁰ This does not include a couple interviews that were not recorded, as I did not have the transcript time stamp or audio recording to capture the duration of the interview.

²³¹ If the interviewee did not consent to be recorded, I took detailed notes instead.

²³² I conducted a total of 22 interviews, where I interviewed multiple interviewees simultaneously in six of the interviews.

Table 5-1. Population Characteristics of Areas Served by Local Health Departments

| Department (Location) | Number of Interviewees | <i>Above the median with respect to...</i> | | | |
|--------------------------|---------------------------|--|-----------------------------------|------------------|---------------------|
| | | % white population | % 25+ with ≥ college degree | Median Income | Total population |
| 1. Upper Peninsula | 3 [UP6] | No | No | No | No |
| 2. Southeastern | 3 [SE8] | | | | |
| 3. Central | 1 [C6] | No | No | Yes | No |
| 4. Upper Peninsula | 2 [UP1] | No | Yes | No | No |
| 5. Southeastern | 1 [SE3] | No | Yes | Yes | No |
| 6. Eastern | 2 [E2] | Yes | No | No | No |
| 7. Eastern | 1 [E4] | Yes | No | Yes | No |
| 8. Upper Peninsula | 1 [UP5] | Yes | Yes | No | No |
| 9. Northern | 4 [N1] | Yes | Yes | Yes | No |
| 10. Western | 2 [W5] | No | No | No | Yes |
| | <i>none</i> | <i>No</i> | <i>No</i> | <i>Yes</i> | <i>Yes</i> |
| 11. Central | 1 [C4] | No | Yes | No | Yes |
| 12. Southeastern | 4 [SE6] | No | Yes | Yes | Yes |
| 13. Southeastern | 3 [SE4] | | | | |
| 14. South Central | 2 [SC2] | Yes | No | No | Yes |
| 15. Central | 1 [C3] | Yes | No | Yes | Yes |
| | <i>none</i> | <i>Yes</i> | <i>Yes</i> | <i>No</i> | <i>Yes</i> |
| 16. Southeastern | 1 [SE5] | Yes | Yes | Yes | Yes |

I divided the health departments into seven regional groups. Below, I list the number of health departments interviewed from each region:

**Table 5-2. LHDs
Interviewed by Region**

| Region | N |
|---------------|-----------|
| Central | 3 |
| Eastern | 2 |
| Northern | 1 |
| South Central | 1 |
| Southeastern | 5 |
| UP | 3 |
| Western | 1 |
| TOTAL | 16 |

Additionally, seven health departments implemented a waiver education program prior to the Michigan state rule. Four of the health departments interviewed had a prior waiver education program in place.

While cases were not selected based on the dependent variable, there is variation in the change in the waiver rate across the participating health departments. See Table D-1 in Appendix D for waiver rates for each of Michigan’s 83 counties in addition to the City of Detroit. Of the sixteen health departments interviewed: 11 contained counties that had changes in waiver rates below the state average (less than two percentage-point change); four contained counties that had waiver rate changes at the state average (two percentage-point change); and seven contained counties that had waiver rate changes above the state average (greater than two percentage-point change).

I also asked about the interviewees’ professional backgrounds and role in implementing the immunization waiver rule:

Tables 5-3a. and 5-3b. Interviewee Characteristics

| Professional Background | N* |
|--|-----------|
| Nursing or Medical | 27 |
| Public Health | 9 |
| Business, Law or Public Administration | 5 |

| Implementation Role | N* |
|----------------------------|-----------|
| Managerial | 17 |
| Service Delivery | 17 |
| Financial | 3 |
| Human Resources | 3 |
| Other | 6 |

*Totals may not add up to 34 because some interviewees fall into more than one category

In the results that follow, I frequently include excerpts from the interviews to illustrate various points and themes. Where appropriate, I made slight corrections to the excerpts by removing utterances such as “um” and “you know.” I also took out repeated words and false starts for clarity. I did not remove or alter any words that changed the meaning or intent of the interviewee.

V. Results

Below, I detail the results of each of the components: structure, process, and outcome. I describe how local bureaucrat-professionals implement a state immunization waiver rule, and ascertain whether LHDs perceive that they have discretion, how they use this discretion, and effects of internal (i.e., departmental) considerations in implementing the rule.

A. Structure

In this section, I describe the structural elements of the immunization education program. I begin by considering whether LHD interviewees perceive that they have discretion in implementing the waiver education program. Then, I review the staffing, financial, and partnership resources that LHDs incorporated into their session planning. Last, I provide LHD insights into who the session participants are in terms of demographic observations and reasons for vaccine hesitancy in their health department's district. Note that I do not discuss staff capacity with regard to bureaucratic professionalism, as the profession exerts an external influence and is thus discussed in Chapter 6.

i. Objective and Subjective Legal Authority

While the letter of the law indicates discretion, I queried interviewees about their perspective on whether they were able to implement the rule as they saw fit. Almost all (15/16) of the LHDs felt that they were being given discretion to design and implement the waiver education sessions. A manager from a central health department said, "The requirement was that we provide the educational sessions, but they did give us a lot of discretion on how and when we would provide the session" [C4]. The sense that LHDs have discretion is also indicated by the comments of the three health departments that had previously been implementing the rule: all three indicated that, while guidelines were provided, they did not make drastic changes to the

educational programs they had in place as a result of the rule. According to a south central health department who had education in place prior to the rule, “we just had to tweak it a little bit so that it complied with the wording of the state” and there “was almost no effect at all” on their educational program [SC2].

The LHDs also saw the value in providing this discretion, allowing for decentralized implementation. A health officer from an eastern health department said, “I think it's important that we try to get on the same page as much as we can, understanding that there does need to be some room for discretion based on exactly where you are and what the concerns of the population are” [E4]. An immunization staff member from a southeastern health department went further, explaining that the rule recognized the community-level heterogeneity in Michigan and that the LHDs could adapt the program to fit the local culture:

I think that was a nod to the local community. There [are] 83 counties in Michigan, and I don't know how many school districts. But, each community operates a little bit differently, there are different issues in each community and so this enabled us to work within the boundaries of our community or community culture. [SE4]

However, some interviewees disagreed with the idea that LHDs were given discretion. A director from a central health department felt they were not given discretion because the state would not allow them to use online education instead of in-person education [C3]. Additionally, an MDHHS employee described their perspective on the rule:

I don't know if the intention of the rule was to give them discretion, but I think that local health departments have their own authority and I think they can do what they need. Each department is unique in how they want to administer their programs. But I think

that we have tried to provide a consistent message to them about how they should conduct those sessions [State1].

Together, these quotes indicate that, while there were some aspects that may be unique to a particular LHD, there were also efforts to direct LHDs toward certain approaches and away from others. In Chapter 6, I consider how state-level direction affected implementation.

ii. Departmental Capacity: Staffing

Staffing experiences varied by department. Fifteen of the 16 LHDs provided an estimate of the number of staff used to deliver waiver education sessions. Based on these estimates, about seven staff deliver the sessions on average, ranging from two or three to more than 20.²³³ However, interviewees caution that these totals may include part-time staff, or they may include staff that rarely deliver educational sessions. Interviewees from a couple health departments commented that they were concerned about how to staff the sessions, particularly because demand and funding resources were uncertain [N1, C3, C4]. A director of public health from an upper peninsula health department described their experience as follows: “I think it’s been pretty seamless for the most part. I mean, it does take extra time for the nurses to do that, but I think part of that is managing by appointment.” [UP1] Most did not indicate that they made new hires, perhaps because funding, and therefore the position, would not be sustainable [E4, SE3, SE6]. Or, in the case of a southeastern health department, they created a position that would handle both immunization waivers and school reporting.

Staffing considerations were also discussed in the context of internal planning prior to implementing the waiver education sessions. In particular, of the 12 LHDs that talked about

²³³ The LHDs whose jurisdictions are more heavily populated generally report having more staff to deliver waiver sessions. However, two of the seven LHDs below the median number of staff have larger populations, while three of the eight LHDs above the median number of staff have smaller populations.

internal planning among staff, 11 mentioned internal training efforts. For example, a coordinator from a southeastern health department described interactions with staff to prepare:

We worked with our administrator, our health officer, and also the manager of immunizations to implement it. After we set down how we wanted the policy to be, we met with staff doing the sessions. I also met with the immunization program, and discussed how to address questions on the phone during the appointment scheduling process [SE8].

A public health nurse from an upper peninsula health department also described coordination and training efforts at the health department: “We have [multiple offices] and we all got together... We have a three-ring binder, and we have all had the same education so we try to give everybody the same information and handouts.” [UP1]. In contrast, an immunization nurse from a central health department said that they did not do internal trainings; rather, they relied on what was delivered by the state [C6]. Overall, a majority of the health departments interviewed invested time in training staff to deliver sessions and in acquiring materials to share with parents.

iii. Departmental Capacity: Funding

The waiver education program is perceived by some of the LHDs interviewed as an unfunded mandate by the state. Fifteen of the 16 LHDs discussed whether and how much funding they received to implement the program. Twelve of the 16 LHDs reported that they received some funding from the state, ranging between \$10,000 and \$60,000. Funding was used to cover costs associated with staff overtime and training, part-time staff salaries, materials, and session registration systems. Based on the interviews, it appears that the state is the sole funder of the waiver education sessions and that the LHD was responsible for the gap between the cost of the program and state funding: as described by an immunization staff member at a

southeastern health department "the amount of money that was provided to us didn't cover the actual cost of doing visits" [SE4].

iv. Departmental Capacity: Community Partnerships

Most of the LHDs interviewed did not involve schools, health care providers, or parents in their session planning. Despite the role schools play in the waiver process, very few of the LHDs interviewed consulted with schools when planning their waiver education sessions.²³⁴ In some sense, this is unsurprising, as the LHDs were inserted into the waiver process because the previous school-led approach was seen as inadequate.²³⁵ As described by a manager from a central health department: "feedback wasn't solicited from the schools per se because it was required that that function be removed from the schools and be taken over by the health department" [C4]. Only one LHD mentioned proactively working with schools as part of a coalition to roll out the waiver process [N1].²³⁶ Most LHDs didn't include physician's offices in their planning, even though it is likely that physicians see the children annually for well-child visits and have an understanding of parental concerns.²³⁷ Three LHDs involved pediatricians and other health care providers in their planning for waiver visits through their involvement in

²³⁴ As mentioned earlier, parents turn in the waivers they received from the LHD to the schools, who then submit them back to the LHD.

²³⁵ In particular, administrative rule documents indicate that the "desired outcome of this change would be less exemptions of convenience and an increased number of children and teens protected from vaccine-preventable diseases." The documents referenced are the Regulatory Impact Statement and Cost/Benefit Analysis form for this rule (# 2014-073-CH). Additionally, a director from a northern health department said, "I think, too, the schools who were issuing these waivers in the past recognize themselves how many they were issuing out of convenience." [N1]

²³⁶ Overall, LHDs did not place an emphasis on publicizing the availability of the sessions during the transition. Rather, most cited the school as the entity that alerts parents of the change in the law. One of the LHDs said that this was an initial challenge: a nurse educator from a southeastern health department said that lack of communication with schools and parents was initially a big problem and caused confusion in the first year. While the schools did send our fliers, this didn't help out pre-K, the parents whose children weren't yet in school and were signing up for kindergarten. [SE8]

²³⁷ The American Academy of Pediatrics recommends annual well child visits for school-aged children: <https://www.healthychildren.org/English/family-life/health-management/Pages/Well-Child-Care-A-Check-Up-for-Success.aspx> (Accessed 1/31/17)

community coalitions or workgroups focused on child health. According to a health officer from an eastern health department,

We have an immunization coalition... We have day care centers, various providers, doctors offices... I can't tell you who all the people are that attend those [meetings], but it's a fairly good, broad representation of a community that meets quarterly to get updates, and also brainstorm some of the concerns about the low immunization rate and the waiver rate. [E4]

Lastly, parents—the recipient of the education—were not involved in planning efforts.²³⁸

The fact that the vast majority of LHDs interviewed did not contact others in the community in their planning indicates that they perceived that they had the knowledge to move forward with the sessions. LHD employees likely drew from their public health expertise when developing the immunization education sessions. And, as we will see in Chapter 6, LHDs sought out information from other professionals and received materials and training from the state. In addition to their public health knowledge, LHDs also used their knowledge of the communities they serve, as alluded to by the immunization staff member's quote above about the LHDs knowing the local culture.

v. Population Characteristics

The final aspect of structure is the population served by the program. Prior research on immunization waivers indicates that white population, income level, and education affect waiver rates. Using California data, Yang *et al.* (2016) examine personal belief exemption rates at the

²³⁸ This is perhaps more surprising, given the push to involve patients in medical decision-making (e.g., Barry and Edgman-Levitan, 2012). On the other hand, vaccination is a public health issue for which the appropriate care is clear and there is less of a role for patient preference from the practitioner point of view.

community level.²³⁹ They find that higher median household income and greater percentages of White students were associated with higher percentages of students with personal belief exemptions in 2013. Prior to this study, a systematic review found that educational attainment, in addition to White race and household income, was also positively associated with personal belief exemption rates (Wang *et al.*, 2014). Yet, the review also cited studies which found that low incomes or socioeconomic status, as well as lifestyles that incorporated veganism and/or natural healing, as associated with the choice to opt out of vaccinations (Wang *et al.*, 2014). A study of “shot limited” children, which is defined as those that do not receive all of their required vaccines during routine checkups, in Michigan found that mothers of these children were more likely to be white, married, college-educated women. The study also found that the children themselves were more likely to be born in a non-hospital setting, attended by a midwife rather than a physician (Weinberg *et al.*, 2017).

This present study cannot assess variation in race and socioeconomic status. As I selected health departments based on income, education, and White population, in addition to size of population served, I cannot report results on variation across these categories. Additionally, most health departments do not collect this type of information from parents and guardians seeking a waiver. However, I did ask interviewees about their observations of the parents who attended the sessions as well as reasons for parental vaccine hesitancy to understand whether Michigan mirrored the aforementioned trends.²⁴⁰

Parents and guardians who attend the waiver education sessions have been described as well-educated, though race and income characteristics were not as commonly mentioned.

²³⁹ While Michigan refers to its documentation as an immunization “waiver,” other states may use terms such as “exemption.”

²⁴⁰ Any comments political in nature are discussed in Chapter 6 (e.g., expressions of parental concern, opposition, controversy, organized behavior).

Interviewees at 11 of the 16 LHDs offered observations of the types of parents that come in for waiver appointments. The most common attribute ascribed to parents was that they were well-educated and/or well-researched (eight of 11 LHDs), although their fact-finding about vaccines wasn't considered evidence-based by LHD interviewees.^{241, 242} An immunization staff member at a southeastern health department remarked,

[T]here [are] a lot of very highly educated people here, and that's a group of people that we know does a lot of looking at articles and reading things. They like to call it research and I like to call it "not research." Because to me, research is, "I'm doing a study and I'm looking at things from a scientific standpoint," as opposed to Googling and reading things...I don't mean to make it sound like these people don't know what they're talking about. They are very educated. They are informed. So they are looking for information, it just may not be the information that's accurate. [SE4]

These observations were made by LHDs who serve more educated and less educated populations.²⁴³ Four of the 11 LHDs mentioned that the attendees are usually the mothers, although fathers have attended on occasion. Interviewees at only three of the 11 LHDs described the attendees as being of higher incomes or socioeconomic status. And, interviewees at only two of the 11 LHDs mentioned the prevalence of Caucasians attending sessions. Meanwhile two of the 11 LHDs reported parents from racially or linguistically diverse populations at their sessions.

²⁴¹ An example of being well-researched was provided by a manager at a central health department: "For the most part we notice that the parent or guardian who comes in, lets us know that they are well researched, they're well educated on the risks and benefits of vaccines. They've done their research either on the internet or through some other form that they feel offered them reputable information." [C4]

²⁴² Of the eight LHDs where the parent/guardian appeared well-educated or well-researched, only three are above the median in terms of college graduates. That is, it isn't simply the LHDs that serve more educated populations, it may be sub-populations within the different counties that are reflective of general demographic trends of vaccine hesitancy.

²⁴³ A little more than half of the LHDs (4/6) who observed well-educated parents attending the sessions served areas whose population is below the median in terms of percentage over the age of 25 with a degree or greater.

When asked about the reasons behind parents’ and guardians’ vaccine hesitancy, LHDs listed myriad concerns about vaccination. As Table 5-4 indicates, concerns about vaccine safety were heard by staff at 11 of the 16 LHDs. An immunization supervision staff member at a southeastern health department shared the following perspective: “We have several different reasons that we’ll put down [on the waiver form]. Vaccine safety, vaccine ingredients, but mainly, I would say, that the main reason is fear” [SE6]. Another common category was concerns about government conspiracies, which were heard by staff at nine of the 16 LHDs. As described by a director at an upper peninsula health department, “We have a very strong anti-government mentality for a lot of things that we do... You know, the tobacco legislation was not well received... That's who are up here.” [UP1]. Other reasons, such as natural immunity/medicine, religion, and alternative schedules were less common.

Table 5-4. Reasons For Vaccine Hesitancy

| Reason | # LHDs | LHD |
|--|---------------|--|
| Vaccine Safety (includes concerns about vaccine ingredients and additives; concerns that it causes autism, makes children sick, or harms children in some way; lack of trust in vaccines) | 11 | [C4, C6, E2, N1, SC2, SE3, SE5, SE6, UP5, UP6, W5] |
| Government Conspiracy (includes anti-government sentiments, belief that the government can’t dictate what citizens do, government and pharmaceutical company conspiracy) | 9 | [C3, C6, N1, SC2, SE4, SE5, SE6, UP1, UP6] |
| Natural Immunity or Medicine (includes belief that natural immunity is better; practices holistic or homeopathic medicine, essential oils, healthy living) | 5 | [E2, E4, W5, UP6, SE6] |
| Religion | 5 | [SE8, UP1, UP5, N1, SE6] |
| Alternative Schedule (includes delayed schedule, adherents to Dr. Sears’s schedule) | 4 | [N1, SE4, SE5, W5] |
| Vaccines Unnecessary (includes the fact that parent didn’t need the shot as a child, vaccine-preventable diseases no longer a threat) | 3 | [SE3, E2, UP6] |
| Personal Choice (includes independent-mindedness, belief in personal choice) | 2 | [UP6, N1, SE4] |

These varied reasons suggest that there is value in a localized approach, as vaccine safety may be more common in some areas, whereas anti-government sentiment may be more common in others. Parents’ and guardians’ reasons for seeking immunization waivers varies widely from

LHD to LHD, and even session to session. Given this, I consider how waiver sessions were delivered by the LHDs to these disparate groups in the next section.

B. Process

Process consists of the implementation tools that use these resources to bring about an outcome. Below, I describe the ways in which LHDs implement waiver education. In particular, I focus on the perceived goals and objectives of the session, the perceived stakeholders of the policy, and implementation accountability. I also describe the programs in terms of session type, duration, and participant requirements.

i. Choice of Tool

In its immunization waiver rule, the Michigan Department of Community Health stated that individuals must receive “education on the risks of not receiving the vaccines being waived and the benefits of vaccination to the individual and the community” prior to being issued a waiver.²⁴⁴ While the stated objective of the rule is to provide education, I asked LHDs what they thought the goals and/or objectives of their implementation activities are to understand what they aimed to accomplish.²⁴⁵ Generally, LHDs answered that it was to provide education about vaccines and several mentioned that this information was provided so that parents/guardians can make an informed decision about vaccination (14/16 LHDs).²⁴⁶ For example, an immunization coordinator from a south central health department said: “Our number one goal is not to change their minds and get them to immunize. Of course, we love that when it does happen, but our

²⁴⁴ Again, the final rule documentation is available in the Michigan Register Issue No. 24 – 2014, Published January 15, 2015 (see p. 113).

²⁴⁵ I acknowledge that goals and objectives are considered distinct in the management literature. Again, I define a goal as the overall purpose of an activity, while objectives are specific aspects within the goal. In this instance, the goal of the program might be to protect children and communities from infectious disease, while an objective in service to the goal is to provide immunization education to parents. However, most interviewees seemed to use the terms interchangeably, and therefore I do not distinguish between the terms here.

²⁴⁶ I considered the following comments as consistent with an educational goal or objective: to improve awareness, inform of the consequences of waiving immunizations, meet state requirements, make sure parents are making informed choices, or give evidence-based information.

main goal is strictly education of the parents of all the requirements and the benefits of vaccinating and the risk of not vaccinating” [SC2]. A smaller number of LHDs (8/16) mentioned persuasion as a goal or objective of the session. A public health nurse from an upper peninsula health department said, “Hopefully you want the parents to immunize their child, [which] would be the ultimate goal” [UP1]. Additionally, an MDHHS employee also stressed education: “The purpose of these sessions [is] not to deny a waiver. The purpose of the sessions [is] to educate” [State1].

Then, I queried LHDs about who are seen as the stakeholders of the policy, as well as who holds them accountable to identify the incentives and constraints of their actions. I define stakeholders simply as those people who are affected by the policy or who care about its implementation. The most-mentioned stakeholder was the community (7/12 LHDs), where some also mentioned the entire state or nation due to the nature of infectious disease. The second stakeholder group was a tie between parents and public health (6/12 LHDs), followed by schools (5/12 LHDs).²⁴⁷ Additional stakeholders mentioned by three out of 12 LHDs were as follows: the immunocompromised (e.g., the elderly, children receiving chemotherapy), the State of Michigan, children/students, and the health system/primary care practitioners. A couple interviewees had difficulties identifying stakeholders. For example, one immunization staff member from a southeastern health department usually views stakeholders as partners in health: “It’s difficult to actually identify stakeholders in this because one of the things we struggled with as a challenge is that we are public health and we believe in vaccinating the children. So, it goes against what we believe to have to provide these waivers” [SE4]. State-level interviewees generally aligned with LHD views, as they cited parents, schools, MDHHS, and the LHDs. It is interesting to note,

²⁴⁷ Interviewees mentioned public health in the context of their own personal stake in the policy, as well as the LHD’s interest in the policy.

however, that the LHDs most often cited their communities. This is perhaps reflective of the fact that they are autonomous local units and, as such, orient themselves primarily toward their communities.

Next, I asked the interviewees who holds them accountable for the waiver education policy. The state and/or MDHHS was mentioned by 12 of the 16 LHDs. A couple interviewees elaborated on their response, saying that they know the state holds them accountable because of their accreditation process: as specified by a director from an upper peninsula health department, “getting a percentage of our population immunized with the required school vaccines, that's a program requirement under the State of Michigan and for our accreditation standard” [UP1]. Thus, LHDs are incentivized to immunize, although there is some recognition that, regardless of what the LHD does, depending on the population, a certain amount of parents will waive rather than immunize. A health officer from an eastern health department said,

If we had a lot of children that are signing waivers, then it's going to be difficult to meet that [accreditation] indicator. It's a condition of funding, although the state has not refused to provide funding for health departments that don't meet that immunization rate. What they do is require you to put together a plan of action but I think there is an understanding that, sometimes, there's only so much you can do with it [E4].

The second most common category was internal accountability (11/16 LHDs), where interviewees mentioned being accountable to their health department, to their manager, or to themselves. Interviewees did not mention public health or their profession as holding them accountable. But, the fact that eight of the 11 LHDs interviewees within this internal accountability category explicitly said that they hold themselves accountable indicates that intrinsic factors such as professional identity could play a role. Although I did not parse out their

exact meaning, it is suggestive of the influence of bureaucratic professionalism, which is examined in greater detail in Chapter 6.

Interviewees mentioned additional individuals and organizations that held them accountable. Clients—which includes mentions of customers, parents, or children—were mentioned by 5/16 LHDs, while 2/16 LHDs mentioned the community or the general public. Finally, schools were mentioned by only two of the LHDs, in part, perhaps, because they are also being held accountable for this policy. For example, an immunization staff member from a southeastern health department said, “I don’t know that there’s anybody holding us accountable other than ourselves, and maybe MDHHS. I think...the accountability, if you will, falls back on the school districts because they know that they have to have a valid waiver in hand” [SE4].

ii. Program Elements

Based on interviews with LHDs, staff at the local level perceived that they have some discretion in how to implement the rule.²⁴⁸ Do LHDs take advantage of this discretion, and in what ways? The vast majority of LHDs interviewed held one-on-one, on-site sessions that were made by appointment. There are a couple reasons for the popularity of this format. First, the one-on-one sessions are preferred because, as a coordinator from a southeastern health department explained, the educator can listen to the parent’s specific reasons for wanting to waive vaccines, as well as what informed them of that decision [SE8]. Second, appointments were preferred because it helped to manage workflow: as described by a director from an upper peninsula health department, “parents have to make an appointment because we can’t be flooded with people” [UP1]. Other respondents indicated that one-on-one sessions were preferred for reasons such as client privacy [SE6], attention, [C4] or comfort in asking questions [C3, UP1]. The state also

²⁴⁸ Again, MDHHS interviewees were hesitant to say that the LHDs had discretion in implementing the sessions. While recognizing that the LHDs were autonomous, an MDHHS employee stressed that they tried to provide guidance to ensure consistency across departments.

preferred one-on-one sessions: as indicated by an MDHHS employee, “We felt that a one-on-one discussion with the local health department could help to alleviate some of the concerns that the parent may have” [State1]. There were some exceptions. Some held walk-in appointments on a limited basis (2/14 LHDs) or occasionally held group classes (2/15 LHDs). And, three of the 12 LHDs held sessions off-site or over the phone to accommodate client needs.

The LHDs made choices about whether to offer after-hours sessions in the evenings or on the weekends. Half of the LHDs interviewed (8/16) provided only weekday sessions, while five of the 16 offered evening sessions. Three of the 16 offered both evening and weekend sessions. Of note, these departments had the highest waiver counts of the 16 LHDs interviewed prior to the rule going into effect, with more than 700 religious or philosophical waivers filed. This suggests that, contrary to the typical street-level bureaucrat context, supply of waiver sessions met demand. In fact, one of these health departments noted that weekend sessions went unfilled, indicating that supply of sessions exceeded demand in some areas [SE4].

There are also policies that affect session demand, such as restrictions on who can make an appointment and the length of the session. Most LHDs (11/12) would conduct sessions for individuals living outside of their county.²⁴⁹ A customer service representative from a southeastern health department explained that generally, parents live or go to school in their department’s district. But they do accept parents that live in the nearby health department’s district, as the neighboring department is quite a distance from where many people live [SE8]. Session appointment times varied from department to department: while the average appointment time was 20 minutes, the shortest time recalled was three minutes and the longest was about two hours long. Interviewees who reported longer times said that this depended on the

²⁴⁹ I used the recollections of the staff charged with service delivery in one instance when multiple staff disagreed about whether individuals outside their county attended waiver education sessions.

client, as those with more than three children or who had a lot of questions would have longer sessions. An immunization nurse from a central HD described their experience as follows,

Every once in a while, you'll get the family who, [the educator] just start[s] talking and see[s] this wall go up that they don't really want to listen to anything that you're saying. But on the other hand, I've had meetings that have lasted an hour, just because they have so many questions. And we want to make sure that they get those all answered [C6].

Interviewees reporting shorter times said that this also depended on the client. Thus, appointment time length was driven by client need.

Another requirement discussed was whether parents must bring their children with them to the session. Most LHDs (14/16) were flexible as to whether or not parents should bring their children to the waiver education appointment. Only two LHDs took a firm approach to whether or not children should be present: one LHD required that the children be present in case the parent/guardian changed their mind, while another LHD required that children not be present so that the parent/guardian could focus on their discussion with the waiver educator. A director from a central health department described their department's rationale for not making such a requirement:

I do know that there [were] some local health departments that [required children] but again with our assumption, which came true, these parents didn't want to get their kids immunized. So to try and make it even more inconvenient, if you will, wasn't going to help anybody except maybe frustrate the parent even more and have the kids have to get out of school [C3].

Overall, LHDs adopted internal policies that allowed parents to be flexible in deciding where to attend a session, whether to bring their children, how long they wanted their session to last.

Of note, the department that required children to be present initially did so because they thought that the child could then receive their immunizations if the parent/guardian changed their mind. The LHD discontinued the requirement because parents/guardians disliked this policy and, according to an interviewee from this LHD: “there was some evidence that was coming out already with our internal stats, that showed, hey, the rule itself is already making a big enough difference and...we weren't getting that many parents and guardians to just turn around and walk their child to our clinic to vaccinate.”

Above, I have discussed the ways in which LHDs used their discretion to implement program elements. Interestingly, this analysis indicates that bureaucrat-professionals at LHDs are using their discretion to accommodate parents' needs rather than public health needs. That is, LHDs do not adopt stricter LHD policies that have the potential to coerce parents to vaccinate their children. Rather than make it difficult to procure a waiver, LHDs choose to make the sessions accessible to parents. Internal policies also support this finding, as strict child attendance policies were phased out. Session length depends on parent preference; it is not used as a barrier to accessing sessions. And, most LHDs allow those from outside of their district to attend sessions, enabling parents who work in another county or who need evening or weekend sessions to be able to attend. Relatedly, in Chapter 6, I find that this accommodation extends to a respectful approach toward parents. This accommodation and respectful approach is part of bureaucrat-professionals' role in managing and absorbing conflict, which is discussed in further detail in Chapter 6. Prior work does not address bureaucrat-professionals' role in managing and absorbing conflict (see Chapter 2).

C. Outcomes

A year after the immunization waiver rule went into effect, news headlines declared “Michigan vaccine waiver rates plummet under rule change.”²⁵⁰ According to an MDHHS press release, there was a 39% decrease in the waiver rate, where the kindergarten rate went from 5.2% to 3.3% and the 7th grade rate went from 4.6% to 2.8%.²⁵¹ However, these aggregate rates conceal substantial local-level variation and the fact that some counties saw greater improvements than others. (see Appendix D, Figures D-1 and D-2 for LHD and county maps of the 2015 waiver rates, as well as changes in county rates from 2014 to 2015). For example, county-level data indicates that 6 counties were at or above 6% waived in 2015, which exceeds the level required to establish herd immunity for measles and pertussis (whooping cough).²⁵² To better understand how the waiver rule contributes to public health, I discuss LHD perspectives below. In particular, I examine how LHD clients react to the sessions, their data collection and evaluation efforts, challenges to making a causal link between LHD implementation variation and waiver rates, and changes to LHDs’ implementation of the waiver education program. I also explore why the waiver rates plummeted from the perspective of LHD interviewees: were parents attending the session convinced to immunize, was the underlying culprit really schools issuing waivers of convenience, or might there be another explanation?

²⁵⁰ Mack, Julie. “Michigan vaccine waiver rates plummet under rule change, latest numbers show.” *MLive*. January 28, 2016. Available at: http://www.mlive.com/news/index.ssf/2016/01/michigan_vaccine_waiver_rates.html (Accessed 2/10/17)

²⁵¹ Eisner, Jennifer. “Preliminary data shows a statewide decrease in school-age vaccine waiver rates.” MDHHS. January 28, 2016. Available at: http://www.michigan.gov/mdhhs/0,5885,7-339-73970_71692-374966--,00.html (Accessed 2/10/17)

²⁵² This is the high end of the threshold indicated by the CDC, “History and Epidemiology of Global Smallpox Eradication.” <http://www.bt.cdc.gov/agent/smallpox/training/overview/pdf/eradicationhistory.pdf>. As cited in Reich, Jennifer (2016). *Calling the Shots: Why Parents Reject Vaccines*. New York University Press.

i. Client Reactions

Client reactions span from anger to thankfulness, and their behavior runs from remaining fixed in their decision to changing their minds. Interviewees from 12/15 LHDs recall a small number of parents who were angry or argumentative. An immunization nurse from a central health department recalled one father who came to a session: “He was just very anxious. It was a father who had a child with, in his opinion, a vaccine accident. I don't know the specifics on the case, but he was irritated just in the fact that he had to come here” [C6]. Interviewees at a couple health departments (2/15) recalled parents who felt that these sessions were inconvenient or “a chore,” [UP5] while others (2/15) described some parents as passive in that they didn’t interact much with the educator. From the perspective of the health department, there were also interviewees who felt that the sessions were positive, where clients left with a “good feeling” or who were respectful and thankful (8/15 LHDs). While interviewees at four of 15 LHDs commented that it seems as though clients had their minds made up and would not decide to vaccinate, there is some indication of behavior change. Interviewees at 12 of 15 LHDs reported that some parents decided to vaccinate their children, either by bringing them fully up to date or receiving one or two vaccinations as a result of the session. An immunization program coordinator at a southeastern health department shared the following story:

I had conducted a waiver appointment for a mom for one of her sons (she had four sons). They were all behind in vaccinations, but only one of them needed the waiver appointment...The next day I did a visit to a physician’s office, and was doing an educational session [there]. One of the MA's said, “Well, we had a mom call today and she came in she made an appointment for all four of her boys to get caught up with their

vaccines after talking to the waiver lady at the health department.” I came to find out it was the woman I had spoken to [SE5].

Overall, most LHDs said that there were just a few clients who were visibly angry and a few clients who completely changed their mind and decide to vaccinate. The vast majority of sessions are straightforward in that parents come in, get their waiver, and leave.

There is some indication that the pattern of client interactions may change over time, in that the extremes will become less extreme. A nurse from a health department that has been holding the sessions for several years reflected, “Initially, we had a higher percentage of parents that chose to get their child vaccinated. But now, I think we're getting down to where those that are coming for waivers are not as interested in the information about immunizations.” At the same time, clients are experiencing the sessions, realizing that it’s not as bad as they were expecting, and sharing this information with others. An immunization staff member from a southeastern health department shared the following perspective:

In the beginning, I think there was a lot more of that expectation that it was going to be a confrontation, there was going to be a challenge. I know from the nurse’s side of things, it was very intimidating for us because we didn’t know who was going to walk through the door. As they’ve gone on, I think that we’ve gotten a lot more comfortable with it. But also I think the community in general know. They’ve talked to each other. And they’re like “okay, it’s not that bad, go ahead and go in there for 20 minutes and get the information, and it’s not horrible” [SE4].

Additionally, LHDs are having repeat clients, as a client who attended a session previously may have another child that now needs a waiver because he/she is entering a reportable grade (i.e., kindergarten or seventh grade). While it may be the case that fewer parents will change their

minds, it also sounds as though fewer parents will be angry or hostile because there are clearer client expectations of the sessions.

ii. Data Collection and Evaluation

In order to evaluate the rule, it would be helpful to have data on indicators such as the number of education sessions conducted, waiver rates, and communicable disease rates. The main outcomes of this program can be measured: waiver rates and communicable disease rates are tracked by the state and the local health department. Over the course of the interviews, LHD interviewees also discussed the number of sessions that they conducted and/or how they tracked the number of sessions (9/16 LHDs). A small number of LHDs collect additional information about the clients, such as client zip code, name of physician, child's school/facility, specific reason for waiver, beliefs, and/or demographic information. The LHD that collected information on client beliefs and demographics no longer does so due to client "backlash."

Additionally, public health programs may administer satisfaction surveys to learn about their processes and how they may be improved. Formal feedback about the waiver program, such as via a survey, was rare among the health departments. The most often-cited feedback was through informal staff debriefing sessions (7/16 LHDs). Four LHDs said that they have general surveys or client cards that are given to all clients, perhaps at a particular point in the year, so waiver clients may have participated in those. Three LHDs said that there was no need to survey clients, as they make it clear that they don't like coming in for the sessions: according to a health officer from an eastern health department, "You can try to evaluate parents' satisfaction with the waiver session, but I don't know that that's a terribly useful type of process evaluation to undergo because most of them are here because they don't want to be" [E4]. Two health departments mentioned partnering with a university to administer a formal survey for parents and/or staff.

Interviewee data collection perspectives also indicate that quantitative research examining the relationship between implementation and outcomes should proceed with caution because available indicators may be unreliable. If the outcome of interest is the number of waivers issued by the LHD, it is important to recognize that multiple waivers may be issued for the same child. For example, a parent may be waiting for the results of a lottery or private school admissions process to determine where a child is going to be entering kindergarten. Thus, tallying waivers issued would overcount this individual. If the outcome of interest is waiver sessions held, the researcher would need to be aware that a client with multiple children could be issued multiple waivers in one session. If the outcome of interest is the number of unvaccinated children, counting waivers or sessions misses children that are under-vaccinated, in that they received some but not all of their required vaccines. If the outcome of interest is the number of antigens waived, clients may try to waive antigens for which their child is not eligible. As an example, a school-aged parent may indicate that they want to waive vaccinations that are only for younger children. Or, clients may try to waive vaccines that their child has already received. Finally, Michigan changed its reportable grade (i.e., when waivers are assessed) in the 2013-2014 school year. This means that analyses cannot track trends easily over time, as there was a gap year in which parents had an extra school year to immunize their children before the waiver was required. Thus, researchers interested in studying the impacts of the waiver education program will need to keep these LHD-level data difficulties in mind.²⁵³

²⁵³ The “one child, multiple waiver” problem is mostly resolved by waiting until the parent submits the waiver form to the school. The school then checks this child against its roster, and sends waiver forms for enrolled students back to the health department, who then reports this data to the state. As we will see later, however, parents may try submitting fake forms, so there would not be a clear link between LHD implementation and the outcome. The “multiple children, one session” problem can be addressed by realizing the limits of counting sessions and determining whether this outcome is appropriate for the particular research question. A resolution to the “counting antigens” problem is a bit more challenging, as it requires LHDs and physicians to be vigilant about updating children’s MCIR records and these processes are ongoing. Note that parents can also opt out of MCIR, so tracking these children’s antigens may be more difficult.

iii. Changes to Waiver Implementation

A majority of LHDs (10/16) mentioned making implementation changes based on their first-year experience. These changes were initiated by either the LHD or the state. The LHD-driven changes concerned process improvement (three LHDs), such as reducing session time by making information delivery more efficient or eliminating unpopular practices such as requiring children to be in attendance. LHDs also updated their implementation delivery by providing additional resources for clients (four LHDs). While some interviewees generally referenced state-initiated changes, several also mentioned specific state-level changes: providing the VIS sheets that discuss the risks of vaccines (three LHDs), offering caution or advice for how to work with challenging clients (two LHDs), and limiting their discussion of religion in sessions where the client requests a religious, rather than philosophical waiver (one LHD). It is interesting that the state would require a discussion of vaccine risks, as prior work suggests that these changes are due to the influence of vaccine-critical groups (Lillvis *et al.*, 2014).

iv. Assessing Causality

As stated above, Michigan waiver rates declined following the waiver education rule. Although this study does not aim to quantitatively assess whether the decline is due to the rule, I can provide LHD-level observations about causality that may help guide those conducting such studies. Below, I discuss interviewees' perspectives on the rule's effect, likely mechanisms, and potential omitted variables. I also want to acknowledge that the ultimate outcome of interest is not waiver rates, but rather communicable disease incidence. Prior literature has shown an association between permissive waiver procedures and increased pertussis incidence (Salmon *et al.*, 2005). Thus, we would expect to see that, over time, increased waiver stringency would lead

to a decline in diseases such as pertussis. Examining the relationship between the rule and communicable disease rates at the LHD and county levels is a promising area for future research.

LHD perspectives on the effect of the rule were mixed. Unsurprisingly, the four LHDs that had implemented the rule prior to 2015 all felt that the rule has had limited impact on the counties they serve.²⁵⁴ Of the LHDs that started providing waiver education in 2015, 10 felt that the rule had a positive effect on waiver rates. One southeastern LHD explained that they issued about 300 fewer waivers than they were estimating based on prior numbers and, based on this, “we had our eyes wide open thinking “okay, just maybe the intent of this new procedure has had an effect.”” [SE4]. Two interviewees at an upper peninsula health department disagreed about whether the rule had an effect because “it hasn’t changed anybody’s minds” [UP6].²⁵⁵ A couple interviewees wondered about the future effects of the rule. For example, an immunization program coordinator from a southeastern health department reflected, “The waiver rate didn’t become high overnight and I don’t think it’s going to go down overnight. I think we are going to see the cumulative results, with the repeated education to some of these parents, with clearing up some of the misconceptions, but it’s going to take some time” [SE5]. Another LHD that has among the lowest waiver rates in the state wondered about the effect of publicizing waivers would have in their district.

Interviewees provided insights about the potential mechanisms of the rule, namely the fact that it targeted waivers of convenience. These waivers are named as such because they refer to waivers being issued for reasons such as a physician’s office may have been closed or ran out of the vaccine, or working parents weren’t able to schedule an appointment to receive a

²⁵⁴ Prior initiation of the waiver education program should be controlled for in any quantitative study. In these cases, quantitative results would be biased against finding an association between the institution of the law and changes in the waiver rate because the changes in these counties occurred in earlier years.

²⁵⁵ It was unclear from the interview with a staff member at the remaining LHD whether they felt that the law had an effect on the waiver rate in that county/district.

vaccination in time for the first day of school. These should not be considered valid reasons for a nonmedical waiver, as explained by a nurse from an eastern health department:

If they were to say, “I’m signing a waiver because I don’t believe my child should be vaccinated, because I don’t believe in them,” that’s acceptable. But, if they say it’s because “I don’t want to take the time to do it,” it’s educating the school that that’s not really a valid reason to sign a waiver [E2].

A majority of the LHDs (11/16) specifically mentioned that waivers of convenience were a problem in their health department’s district. As this was a common theme, I asked LHDs how they were informed that this was, indeed, the underlying problem. A couple LHD interviewees mentioned that either the schools provided this information, or they were alerted to it because waiver forms asked for parents to indicate their reasons for waiving vaccines.²⁵⁶ LHDs also linked the decline in waivers of convenience to the overall decline in their district’s waiver rate. As described by a director from a central health department, it changed parents’ thinking: instead of just signing the waiver at the school, “I’ve got to make an appointment for something and since I really do want my kid to get immunized, I might take him to their primary care provider, or Walgreens, or they could come to the health department for the shots, too” [C3]. A couple LHD interviewees mentioned parents who came in for convenience waivers and were able to be redirected to the immunization clinic [SE3, C3, N1].

Potential omitted variables may lead researchers to draw spurious associations between the waiver rule and changes to the waiver rate. I asked LHDs about other potential policies,

²⁵⁶ The state may have played a role in alerting LHDs to convenience waivers: this was the rationale cited in official documents when the rule was being proposed. That is, the problem of convenience waivers is stated in the rule’s Regulatory Impact Statement & Cost-Benefit Analysis documents, which I obtained from the Michigan Office of Regulatory Reinvention (received 1/24/17). Additionally, the two MDHHS employees interviews noted that waivers of convenience were a problem when reviewing their data on children who received a waiver but eventually vaccinated, indicating that there was no philosophical objection to vaccination. They also were aware of convenience waivers through their work with schools and LHDs.

programs, and efforts that also may have affected the waiver rate. While several LHDs said there were no additional factors in their district, other LHDs indicated local-level efforts that may have had an effect. Some cited school efforts in terms of developing their own policies aimed at improving waiver rates or working with LHDs to address the needs of certain populations like exchange students. Others mentioned general changes that likely affect all health departments, such as physicians and schools becoming vigilant about entering vaccinations into MCIR (Michigan Care Improvement Registry), or greater emphasis on vaccination due to the rule.

VI. Discussion

The purpose of this chapter was to describe how local bureaucrat-professionals implement a state rule. In particular, I established that LHDs perceive that they have discretion to implement the rule and detail how they use their discretion in the context of internal factors that may influence their decisions. Of note, this discretion appears to have limits that are set by the state. Additionally, LHDs did not receive long-term funding to cover the cost of implementing the program, and thus did not hire full-time staff to conduct the sessions. Rather, LHDs added session delivery to the responsibilities of current full- and part-time staff. Most LHDs did not solicit feedback from potential partners, such as schools or health care providers, when planning the sessions. In terms of the population served, LHD interviewees described session participants as well-educated, but did not note commonalities in terms of race and income characteristics. Session participants listed numerous reasons for their vaccine hesitancy, the most common of which were safety concerns and anti-government sentiment.

Overall, there appears to be some level of consistency in the sessions across the departments, although variation occurred based on client need. The most-often cited objective of

the program was education, not persuasion, which comports with the view of state-level interviewees. Several stakeholders were named by LHDs, the most common of which were the community, parents, public health, and schools. Most LHDs agreed that the state/MDHHS held them accountable for implementing the policy, perhaps due to the fact that the state accredits the LHDs. LHDs also mentioned that they held themselves accountable, potentially indicating the influence of their professional identity. It is noteworthy that LHDs, with some exceptions, did not feel that the community held them accountable.

Turning to the general program elements, most LHDs held one-on-one, on-site sessions that required an appointment. From the perspective of the LHD, they appeared to be accommodating waiver session clients. For example, session availability was based on demand, in that LHDs with a history of greater numbers of waivers provided weekend and evening sessions, in addition to their usual daytime hours. Also, most LHDs accepted parents from other counties. Appointment duration was based on client demand, as clients with more children or questions could extend their session time. Finally, LHDs adapted to allow parents to bring their children with them or leave them home, whichever was more convenient.

In the year after the waiver rule went into effect, immunization waiver rates dropped statewide, as well as in more than half of Michigan's counties (see Table D-1 in the Appendix). Is the rule responsible for the change? It was rare that session attendees were persuaded to change their mind and vaccinate their children as a result of the session. LHDs varied in the extent to which they collected data on the sessions or the parents who attended the sessions. A majority of LHDs recorded the number of sessions held, and a small number recorded information about the parents such as their zip code or primary care physician. Most LHDs did not solicit feedback from parents attending the waiver sessions, although their opinions may have

been captured in general satisfaction surveys available to all department clients. In conversations with the LHDs, it became apparent that examining the relationship between implementation choices and outcomes using LHD data would be difficult. For example, more than one child may be at a session, or multiple waivers may be issued for the same child who is unsure where he/she will be attending school in the fall. Although causality may be difficult to determine, there was agreement that eliminating the convenience waiver was the likely mechanism contributing to the rule's success. Summarizing the quote above, the waiver education requirement made obtaining a waiver as convenient as receiving the vaccine.

While this chapter examined the internal considerations of bureaucrat-professionals implementing a state rule, it does not address the effects of external considerations. Of note, most of the interviewees are also public health professionals and therefore may be subject to professional constraints. What role does professionalism play? While this is discussed in detail next in Chapter 6, this present chapter provides some indications that professionalism factors into LHD actions. For example, in their planning, LHDs rely on their own expertise and do not reach out to community partners for help in designing the sessions. And, self-regulation appears to be taking place, as many LHDs reported that they hold themselves accountable for the waiver education program. Additionally, the state appears to play an important role in accountability, as well as in directing LHDs toward certain strategies. In what ways does MDHHS serve as a “centralizing institution” similar to the role of the Board of Health discussed in Chapters 2 and 4? Finally, this chapter makes no mention of an important external consideration: politics. What are the potential public, legislative, and/or judicial threats to this rule, and how does implementation address these threats? Chapter 6 addresses these unanswered questions.

VII. Conclusion

This chapter described the implementation of a specific state rule, the 2015 Michigan immunization waiver rule. I explored how LHDs in Michigan planned, executed, and evaluated that education sessions that are the cornerstone of this rule. I adapted the “structure-process-outcome” framework to understand how LHDs implemented the rule. While this chapter focused on the internal considerations of bureaucrat-professionals, we should also elucidate the effects of external considerations, namely professionalism, centralizing institutions, and the political environment. I take up these external considerations in the next chapter.

CHAPTER 6

Rule Implementation and the Role of Bureaucratic Professionalism

What is the role of bureaucratic professionalism in rule implementation, and how do external considerations affect bureaucrat-professionals' implementation behavior? In Chapter 4, I found that bureaucrat-professionals' rulemaking behavior is tempered by political conditions, namely divided government.²⁵⁷ In Chapter 5, I examined the implementation of a particular rule, the Michigan immunization waiver education rule. As mentioned earlier, this rule was not immediately preceded by an act of the legislature. I described the internal decisions made by local health departments (LHDs) and found some indications of expertise, in that they did not rely on community partners to provide advice about how to implement the rule. I also noted that the majority of LHDs held themselves accountable, which suggests that self-regulation may be present. In this chapter, I examine how local-level bureaucratic professionals within LHDs implement a state rule and explore the influences of political environment and centralizing institutions on rule implementation. In doing so, I illustrate how the aspects of professionalism are present in local-level policy implementation. I also show how policymakers can leverage bureaucratic professionalism by shifting implementation responsibility to a different professional group. Finally, I reconsider the aspects of bureaucratic professionalism enumerated in Chapter 2 based on my analysis of rule implementation in this chapter and Chapter 5.

²⁵⁷ However, my hypothesis about the role of centralizing institutions was not supported.

While much of this dissertation is guided by an understanding of how state-level bureaucrat professionals behave, local-level actors may be subject to their own particular constraints. Specifically, prior work has found that local-level—or what Lipsky (1980) terms “street-level”—bureaucrats often wield considerable discretionary power in providing client services. Yet, local-level bureaucracies are also noted for inadequate staffing and funding resources, which results in a lack of responsive or appropriate services. Thus, this chapter will consider the incentives presented to LHDs, which may help them overcome the difficulties typically faced by local-level implementers.

This chapter proceeds as follows: First, I consider how bureaucratic professionalism, centralizing institutions, and political environment affect rule implementation at the local level. Second, I provide a brief summary of my methods, as I am relying primarily on the interview data described in Chapter 5. Third, I present the results of my examination of the role of bureaucratic professionalism in rule implementation, as well as the influence of external considerations on rule implementation. Fourth, I discuss whether the influence of centralizing institutions can be separated from the role of professionalism, the fact that the concerns of “street-level” bureaucracies are not present in this case, and the limitations of this case in studying the effect of political environment. Last, I indicate potential policy implications of my findings and conclude.

I. Concepts and Literature Review

As described in this dissertation and elsewhere, a bureaucrat who is also a member of a profession likely behaves differently than a bureaucrat without this affiliation. Similar to their state-level counterparts, local-level bureaucrat-professionals may be subject to the constraints of

their profession, centralizing institutions, and political pressures. In Chapter 2, I discussed how the expertise, information and support networks, and self-regulation affected bureaucrat-professionals' rulemaking behavior. However, it is reasonable to assume that bureaucratic professionalism may also affect how local-level bureaucrats implement a rule (or program implementation more generally). Local-level bureaucrat-professionals may enhance agency policy implementation efforts due to their expertise and professional networks, as well as commitment to the mission of public health. However, they may be subject to different political, institutional, and organizational pressures. In this section, I outline the various elements of bureaucratic professionalism that we may expect at the local level, as well as potential pressures, and draw connections between these aspects. While some aspects were identified *a priori*, such as bureaucratic professionalism and political pressures, others were identified as a result of the interviews. As such, I do not present a "theory" section, but rather a narrative about how the concepts fit together that is supported by the literature.

A. The Role of Professionalism

This section considers the extent to which LHD employees are bureaucrat-professionals, as well as the specific aspects of professionalism that may affect rule implementation. It also considers how changing the responsible governmental entity, or venue, alters rule implementation. Specifically, different professionals may be given responsibility as a consequence of the venue shift. Although local-level bureaucrat-professionals bring certain favorable attributes to rule implementation, limited access to resources may hamper their efforts.

i. Bureaucratic Professionalism at the Local Level

While most LHDs across the U.S. have experience delivering immunizations (NACCHO, 2016), few design and conduct mandatory immunization waiver education sessions.²⁵⁸ Thus, we would expect that LHD employees utilize their training and education to plan for and carry out the waiver education sessions. Further, LHDs may turn to their professional network to solicit feedback about how to proceed, as some LHDs have prior experience with these sessions.

In addition to expertise and networks, bureaucrat-professionals are also subject to the self-regulatory aspects of their profession. Wilson highlights the importance of a shared culture, which he defines as “...a persistent, patterned way of thinking about the central tasks of and human relationships within an organization” (1989, p. 91). This patterned thinking reflects the professional norms within a governmental entity, which in turn can influence the implementation decisions of those on the ground (Kaufman, 1960). While professional norms are seen as a benefit, Kaufman cautions that rigid norms may hinder staff’s flexibility and understanding of local conditions, which are also important to implementation. As discussed in Chapter 2, bureaucratic professionalism, of which norms are a part, can aid in governmental employees’ efforts to make and implement policy.

The analysis in Chapter 5 suggests another aspect of bureaucratic professionalism: the management and absorption of conflict. I noted in the previous chapter that LHD employees sought to accommodate, rather than aggravate, the parents seeking to exempt their children from mandatory vaccinations. They did this through processes such as flexible session hours and policies such as allowing parents to go to different LHDs and permitting parents to choose

²⁵⁸ National data collected by NACCHO indicates that almost 90% of LHDs provide childhood immunizations (2016). Chapter 5 establishes that only Michigan mandates that parents receive in-person education sessions at the local health department, although LHDs may choose to deliver this education in other states (i.e., Arizona, Utah). However, it may be the case that there are LHDs providing education within states that do not have an education law in place. Note that while Michigan provides vaccine waivers, other states may call them exemptions.

whether or not to bring their children. This chapter will further consider conflict management as an aspect of bureaucratic professionalism.

ii. Policy Venue and Image

Specific entities are granted the authority to make decisions about policy implementation. These entities, termed “policy venues,” can shift over time (Baumgartner and Jones, 1993). A lateral shift moves policy from the purview of one agency or subcommittee to another. A vertical shift occurs when responsibility travels between levels of government, such as centralizing policy implementation from a local to a state government, for example. The choice of policy venue shapes how a policy is understood, or its “policy image” (Baumgartner and Jones, 1993). For example, when making decisions about pesticide usage, an environmental group may consider the harmful health effects while the congressional agriculture committees may consider the benefits to farm productivity (Baumgartner and Jones, 1993, p. 31). Shifting venues also changes the types of professionals implementing policy, where a particular policy may be more in alignment with one profession’s culture, expertise, and priorities than another’s. Thus, we would expect that shifting the policy venue from schools to LHDs would have implications for how school immunization rules are implemented.

iii. Bureaucrat-Professionals as “Street-Level” Bureaucrats

Moving implementation responsibility from one local unit to another may improve outcomes by aligning professional culture and policy goals. However, theory suggests that local implementers, or “street-level” bureaucrats, are subject to work environment pressures that lead to unresponsive and inappropriate service delivery (Lipsky, 1980). One might ask whether LHD employees are indeed street-level bureaucrats. Street-level bureaucrats are those government employees that “interact with and have wide discretion over the dispensation of benefits or

allocation of public sanctions” (Lipsky, 2010, p. xi). As Chapter 5 indicated, many of the LHD interviewees provide direct services to clients. Additionally, they indicated that they felt they had discretion in implementing the waiver rule. Therefore, it appears that they fit the definition of a street-level bureaucrat. Yet, street-level bureaucrats perform their tasks sub-optimally because they lack “the time, information, or other resources necessary to respond properly to the individual case” (Lipsky, 2010, p. xi). But, as street-level bureaucrat-*professionals*, LHD employees may have the tools they need to overcome the typical ills of street-level bureaucracies.²⁵⁹

B. The Influence of Centralizing Institutions

While professionalism may be necessary to overcome the challenges faced by street-level bureaucrats, it may not be sufficient. In this section, I address the role of what I term “centralizing institutions” in influencing rulemaking behavior. As relevant to this particular case, the Michigan Department of Health and Human Services (MDHHS) may constrain or direct the behavior of LHDs. At the same time, there may be advantages to allowing for local-level variation in tandem with state-provided direction.

i. Discretion with Direction

A certain amount of direction, rather than discretion, may be desirable in rule implementation. For example, McCann found that the inability of an agency to set newborn screening criteria was associated with more effective implementation (2009). Thus, it is important to assess direction as well as discretion: to what extent does the state provide specific guidance as LHDs plan for the implementation of the waiver program? The type of direction

²⁵⁹ Lipsky provides social workers, teachers, and police officers as examples of street-level bureaucrats in his work. While these do represent professions, it may be that some tasks are not in alignment with their professional mission (e.g., teachers and disciplining rather than educating students) or that they do not have access to the same professional networks. Although it is outside the scope of this project to compare LHD employees to other street-level professionals, I wanted to recognize that these groups are indeed also professionals.

should also be considered, as the state could provide programmatic information such as criteria or guidance on a particular approach. It may also provide political information, such as the existence of constituent complaints or potential legal challenges.²⁶⁰

ii. Approach

Decisions about implementation approach are important because they can lead either to the policy's success or its undoing. At the federal level, Huber (2007) found that bureaucratic leaders may employ a "strategic neutrality" approach.²⁶¹ Huber notes that there are political and managerial aspects to implementing a policy using this approach. Politically, leaders work to steer the policy in a way that does not unify opposition to the policy and, at the same time, displays departmental competence. Managerially, leaders aim to standardize implementation by limiting staff's discretion and providing central direction and oversight of implementation activities. However, there may be advantages to decentralized management, particularly if political risks vary geographically. For example, Bawn (1995) theorized that delegation occurs at the federal level when uncertainty about policy outcomes is greater than uncertainty about the political impact of agency actions.²⁶² At the state level, delegation to local units may occur under similar conditions. Through decentralization, local entities may be able to approach the policy in such a way that the potential policy impact exceeds the potential political risks.^{263, 264} Thus, the state may provide discretion in some areas and direction in others.

²⁶⁰ It is important to recognize that, while I classify this type of information as "political," LHD and state interviewees may not consider it as such.

²⁶¹ According to Huber, strategic neutrality "is an implementation practice that simultaneously serves agency leaders' management and political needs. It helps guide public policy toward desired ends while minimizing the likelihood that outsiders will gain sufficient political strength to overrule agency decisions." (2007, p. 1-2)

²⁶² Bawn mentions that health-oriented policies are associated with more policy, or "technical," uncertainty, in that it may be difficult to predict the result of natural processes.

²⁶³ To illustrate, consider the following example: during a measles outbreak, government officials may decide to exclude unvaccinated children from school. This decision carries a certain amount of uncertainty about the effects of the policy, although available research evidence may suggest this as the best course of action. It also carries a certain

C. The Influence of the Political Environment

In this section, I describe the potential political threats to the rule in terms of public support, legislative threats, and judicial threats.

i. Public Support

Public support refers to whether or not stakeholders, which I define as those people affected by the policy, agree with the policy and how it is being implemented. Here, I consider public support from the perspective of interest group activity, as well as the electoral consequences of that activity. Interest group influence can vary based on group size (e.g., Truman, 1951; Olson, 1965), visibility (e.g., Kollman, 1998; Miler, 2007), and political power (e.g., Schneider and Ingram, 1993; Strolovitch, 2006).²⁶⁵ One of the ways interest groups can voice their support for, or opposition to, a policy is by contacting elected officials and encouraging them to work on behalf of the group's concerns. As politicians are motivated by reelection, they often take part in activities that support this goal, such as taking positions on issues that can garner public support or claiming credit for the work that they've done on behalf of constituents (Mayhew, 1974). Particularly in expertise-driven policy arenas such as health care, interest groups can provide information to elected officials about whether there is consensus about the success of a policy, as well as its unintended consequences (Esterling,

amount of political uncertainty, as how it is implemented at the school or county level may anger some constituents to mobilize and/or mount a legal challenge.

²⁶⁴ Huber's (2007) case study choice of the Occupational Safety and Health Administration (OSHA) represents only one policy-political uncertainty dynamic identified by Bawn (1995). Bawn theorizes that the political and policy uncertainty faced by OSHA leads to a compromise between political control and agency expertise, resulting in less agency independence. Bawn then describes health-specific agencies as being granted greater independence than OSHA. These agencies utilize this greater independence to employ their expertise. However, this gain of expertise comes at the expense of political control, where the delegator makes the decision to grant the implementer greater independence. Combining the theories of Huber and Bawn, strategic neutrality may be achieved by centralization when policy and political uncertainty concerns are balanced, as is the case with OSHA. However, *decentralization* may facilitate strategic neutrality when policy uncertainty has the potential to exceed political uncertainty.

²⁶⁵ Truman (1951) and Olson (1965) have opposite viewpoints on the effects of size: Olson believes that smaller groups are best for meeting shared objectives, while Truman believes that larger groups are preferred. Olson also argues that commitment mechanisms such as selective benefits can also increase the effectiveness of groups.

2004).²⁶⁶ In this way, interest groups can alert elected officials to policy implementation issues that have escaped the scrutiny of other monitoring mechanisms (McCubbins and Schwartz, 1984; Lupia and McCubbins, 1994).

Additionally, it is worth considering the ways in which local-level bureaucracies may be responsive to the preferences of the public they serve. For example, a study focusing on public school biology teachers suggests that their approach to teaching evolution largely conforms to local preferences (Berkman and Plutzer, 2011). Thus, interest groups can represent stakeholder preferences, which can in turn place pressure on elected officials; local-level bureaucrats can also anticipate these preferences.

ii. Legislative Threats

Bureaucracies implement policy within the confines of the law. That is, the legislature delegates responsibility for implementing a policy to the bureaucracy at some prior point in time, and the bureaucracy works within the parameters set forth in this law. The state legislature has an interest in overseeing state agency implementation of policies for the purpose of potentially controlling the actions of the bureaucracy.²⁶⁷ Specifically, the legislature wants the policy to be implemented in a way that aligns with their current preferences rather than having it drift away from them in the future (Shepsle, 1992). There is an extensive literature on delegation from the legislature to the bureaucracy at the federal (e.g., Moe, 1984; Bawn, 1995; Epstein and O'Halloran, 1999) and state levels (e.g., Huber and Shipan, 2002; Volden, 2002; McGrath, 2013; Krause and Woods, 2014).

²⁶⁶ Although Esterling focuses on the policy formulation phase, his work can also be applied to the implementation phase.

²⁶⁷ I emphasize “controlling” here because it makes a distinction between two views of bureaucratic behavior: one in which bureaucrats behave autonomously, or the “administrative dominance” perspective, and one in which bureaucrats are to some extent controlled by political principals, or the “political control” perspective. Much of the current literature has made a convincing argument in favor of the “political control” perspective (for a review, see Huber and Shipan, 2008).

The legislature has other means by which it can influence bureaucratic activity. In addition to reacting to a certain level of delegation, the bureaucracy can anticipate legislators' preferences for policy implementation based on the ideological composition of relevant committees (e.g., Weingast and Moran, 1983). At higher echelons of the bureaucracy, funding decisions send signals about the agency's activities (Carpenter, 1996). However, these signals become diluted as they travel through the hierarchy of the bureaucracy. In the waiver education context, a program manager or local agency may not necessarily receive this signal.

Another example is the legislature's ability to review a rule made by the agency (Bawn, 1997; Balla, 2000; Reenock and Poggione, 2004). Here, the state legislature can examine agency actions and take corrective measures if necessary. In fact, a study of individual legislature preferences has shown that state legislators with access to *ex post* mechanisms such as rule review are less likely to prefer *ex ante* control measures (Reenock and Poggione, 2004).²⁶⁸

iii. Judicial Threats

When it comes to policy implementation, what are the confines of the law? Courts may intervene if agencies overstep the policy implementation responsibilities delegated to them. At the federal level, agencies may be given deference to implement policies as they see fit. In *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.* (1984), the Supreme Court enabled agencies to implement policies as long as their actions were reasonable given the ambiguities of a particular law. And, as a result of *U.S. vs. Mead* (2001), the courts give greater deference to agencies that use a formal rulemaking process in contrast to less formal measures.²⁶⁹

²⁶⁸ Some common *ex ante* measures for controlling the bureaucracy include agency design decisions such as the procedure for choosing agency head, the scope of agency authority, and the organization of an agency.

²⁶⁹ However, a court's willingness to grant deference to an agency may depend on other factors, such as the ideology of the enacting president if it aligns with the justice (Smith, 2007).

While deference is one aspect that can affect the success of cases, the nature of the policy and the economic motivations of the plaintiffs may affect the supply of cases. Namely, laws that impinge upon individual behavior or choice may be subject to judicial challenges. In the realm of public health, individual (or parental) rights are often weighed against the public good. Public health regulations can burden individuals based on a concern for autonomy, privacy, or religion, for example (Gostin, 2008). According to Gostin, public health agencies “should adopt the policy that is most likely to promote health and prevent disease while incurring the fewest possible personal burdens” (2008, p. 68). In addition to personal rights, potential plaintiffs may also consider the cost of entering into a court battle. Farhang (2008) found that Congress can incentivize constituents’ private litigation efforts by varying how attorney fees and damage settlements are calculated. In sum, the extent of individual burden and cost of litigation affect whether legal complaints are filed.

II. Methods

The purpose of my data collection is to gain an understanding how professionalism affects policy implementation at the local level, as well as identify the external factors that influence professionals’ implementation decisions. As such, I conducted semi-structured interviews that included open-ended questions to obtain interviewee perspectives and reactions to a range of topics (see Appendix D, Document D-1 and Appendix E, Document E-1 for interview guides; see Chapter 5 for descriptive statistics about the LHDs and interviewees). I then contextualized the above interview data with additional documents such as state-provided educational materials, proposed legislation, legal complaints, and state waiver rate data. I list these additional documents in Appendix E, Document E-2.

As in Chapter 5, I illustrate certain points and themes by using excerpts from the interviews. Again, I made slight corrections to these excerpts by removing utterances, repeated words, and false starts. At no point did I remove or change any words that altered the meaning or intent of the interviewee.

III. Results

My analysis shows that LHDs do not implement programs in the style of street-level bureaucracies and instead deploy their discretion to meet clients' waiver needs. This approach is reinforced by the state, which provides direction on session topics and implementation changes, as well as feedback about parental experiences. At the client level, LHDs are utilizing their discretion to accommodate parents' decisions not to vaccinate their children. While this may at first seem surprising, we should recall that bureaucrat-professionals may be taking a long view of how the waiver education rule improves childhood vaccination rates. At the community level, the policy appears to be decreasing waivers of convenience and providing clients with an evidence-based resource for immunization information. Although there have been no major legal or legislative challenges to date, documentation reveals that these challenges do exist. While these challenges were not top-of-mind for interviewees, the state has given advice that relates directly to mitigating the problems noted in these challenges.

A. Bureaucratic Professionalism at the Local Level

To start, I would like to establish the expertise, information-sharing, and networks interviewees utilize in their work, as well as identify the presence of self-regulation in the implementation process. I illustrate how the aspects of professionalism are present in local-level

policy implementation. I then contrast the role of professionalism in program implementation with its role in rulemaking.

First, as noted in Chapter 5, the LHD interviewees I spoke with had the requisite expertise to implement the rule. All had education related to their roles (see Table 5-3a in Chapter 5), where the majority had degrees in nursing or medicine. Interviewees averaged 19 years of experience, and the majority had over 10 years of experience (see Table 6-1 below). Additionally, interviewees have served in their current role for an average of seven years.

Table 6-1. Interviewees: Years of Experience

| Years | ...Experience in Field ²⁷⁰ | ...in Current Position ²⁷¹ |
|----------------|---------------------------------------|---------------------------------------|
| Less than 2 | 0 | 5 |
| 2 to 5 | 2 | 12 |
| 6 to 10 | 6 | 6 |
| 11 to 20 | 8 | 6 |
| More than 20 | 14 | 2 |
| Average | 19 | 7 |
| N | 33 | 31 |

Interviewees also indicated that they utilized their professional network in their session planning. The most common group that LHDs consulted with when planning their sessions was other LHDs, as nine of the 16 LHDs indicated that they were in contact with other LHDs during the planning process.²⁷² An immunization program coordinator from southeast Michigan said,

I reached out to a couple of health departments that had been doing the sessions previous to changes in the law. So I reached out for guidance from them to find out what works for them, what didn't work for them, and what educational materials they used in their sessions [SE5].

²⁷⁰ It was unclear how many years of experience an interviewee had in relevant fields (i.e., public health or health care) in one of the interviews. For three of the interviewees, it was unclear whether they were answering the number of years in their current position, or overall experience.

²⁷¹ It was unclear how many years three of the interviewees were in their current position.

²⁷² Chapter 5 revealed that LHDs generally did not rely on community partners, such as schools or primary care providers, in their session planning.

Of the nine, six LHDs said that they were put in contact with other health departments through the state. Interviews at two other southeastern health departments reflected that the calls arranged by the state were helpful. But, they noted that the LHDs with prior implementation experience were from smaller jurisdictions, so some of their lessons would not apply to an LHD responsible for many more students [SE3, SE6]. LHDs were also brought together through professional associations. Six LHDs discussed how to implement the rule with other health departments through professional associations such as the Michigan Association of Local Public Health (MALPH) or related groups, such as its Nurse Administrators Forum (four LHDs); two LHDs mentioned the role of several-county immunization groups.²⁷³

LHD interviewees discussed self-regulation in terms of how they oriented themselves toward the policy. According to a director from a central health department, the “philosophy in our health department was that regardless of whether or not the parent chooses to get the vaccine or vaccination, our goal is similar in that we want to keep their child or children healthy” [C3]. An immunization coordinator from an upper peninsula health department echoed those sentiments: “our standpoint is, we are public health nurses, we are here to protect the public, the entire public” [UP5]. Some interviewees reflected on the dissonance between their dedication to vaccination and granting waivers. When describing how they staff the waiver education sessions, a health officer from an eastern health department said:

If you're a strong immunization advocate, which our nurses are or we wouldn't have

²⁷³ The state-level interview indicated that MDHHS was monitoring the progress of those LHDs that had been holding education sessions prior to the rule. From the LHD interviews, however, it was unclear whether the state was in contact with these early adopters. On the one hand, an interviewee from a health department with prior waiver education experience said that they provided feedback on state activities: “some of my staff were involved in suggestions for the training that they had.” On the other, an interviewee from another health department with prior experience said, “There was no personal contact made but, the nurses go to training on an annual basis and there's communication among the staff. I couldn't tell you what individuals who came in contact with state representatives might have said, but, I mean, it's very well that they could have used this information. And, an interviewee from a third health department with waiver education experience was unsure, but thought they communicated with the state: “I believe I had had conversations with our local immunization state consultant about what we were doing.”

them working in that program, it can be really difficult to accept the decision from parents, and if you know of children that have died [...] it's hard to not want to have every single child immunized [E4].

A medical director from a northern health department said that, while they valued “being in a free-thinking population” it “also means that you're free to make wrong decisions. And, I think, in the case of immunization, the people who make that decision to waiver their children are making the wrong decision” [N1]. Mirroring these sentiments, an immunization supervision staff member from a southeastern health department described their department’s thoughts on the sessions: “there's also philosophical issues to consider, such as, just how flexible are you going to be to help people essentially make the wrong choice” [SE6]? Thus, while access to expertise and networks positions bureaucrat-professionals within the LHDs to implement the rule, interviewees are also cognizant of the greater implications that this rule has for public health.

i. Image and Venue

Given the indications that bureaucrat-professionals within LHDs are subject to the culture of public health (i.e., patterns of thinking about key tasks), there are real policy implications of giving LHDs the responsibility of providing waiver education and waiver forms. State childhood vaccination policy, particularly the exemption, or “waiver,” component, can be implemented in a number of venues. As vaccines are mandated for school entry, schools play an important role in policy enforcement, whereby children are (in theory) not admitted if they are out-of-date on their vaccinations or if they do not have a formal exemption. As mentioned in Chapter 5, some states also require parental education as a condition for exempting children from vaccine mandates. The venue for this education differs, although it usually involves a public or private health care

entity. It may be administered by the state health department, a health care provider, or a local health department, as in the state of Michigan.

The potential for a venue shift to influence waiver rates was noted in my interviews. Eight of the 16 LHDs provided their perspective on the school's enforcement role under the previous policy. All eight described the previous policy of issuing waivers at the school as rather casual and neglectful and, of these, five also mentioned the importance of having someone on-hand to answer questions about immunizations. To illustrate the casual nature with which waivers were issued, an immunization nurse from a central health department described instances in which school staff would say to parents, "Just sign here so your child can stay at school" [C6]. According to an immunization staffer at a southeastern health department, it was so informal that parents didn't even realize that they were signing a form stating that they had a philosophical or religious objection to vaccinations. A director from an upper peninsula health department described the previous waiver policy as being implemented "with complete neglect" and did nothing to inform parents who "needed to know more about the immunizations that maybe didn't know where to get that information from" [UP6]. Similarly, a nursing supervisor from a western health department describes the previous policy as follows: "Before, the school could just have parents sign the waiver. Now, it's not just a piece of paper, it's education for the parents" [W5]. From the state perspective, an MDHHS employee reflected on the waiver process prior to the rule: "It was easier to get a waiver than it was to get a vaccine, and that was not where we wanted to be" [State1].

Although it may be surprising to hear that schools were handing out waiver forms so freely, it is important to recognize that schools have the primary mission of educating children and ensuring that students attend school. As described by a nurse from a southeastern health

department, school secretaries are concerned about attendance and submitting school immunization reports, while school nurses have many other duties and cannot be available to address parental concerns regarding vaccination [SE3].²⁷⁴ They do not have time to make sure that parents are signing the waiver based on their opposition to vaccines rather than out of convenience because their child is out-of-date on their immunizations. School secretaries, who used to issue the waiver forms, also do not have the latest information about the risk of pertussis outbreaks, as pertussis is a concern in this particular health department's jurisdiction. An MDHHS employee noted that schools reacted positively to the new rule: "This is welcoming to [the schools] because in a way, it took some of the burden off of them. They didn't have to worry about whether a waiver was valid or not. Now that decision was made by a local health department" [State1].

As schools want strong student attendance, their goals are at odds with state policy, which says that students who are not fully immunized or waived must be excluded from school. Four of the 16 health departments described situations in which schools in their jurisdiction were flexible in enforcing the immunization policy, in that they did not turn students away even though they failed to meet the immunization requirements. However, the mention of flexibility was not necessarily to blame schools for their policy implementation approach. Two LHDs mentioned how the schools were flexible to allow for an adjustment period as the new waiver policy was being put into effect to enable LHDs to meet with parents [N1, SE6].

Additionally, it is important to note the incentives the school faced before the rule went into effect. A couple interviewees mentioned that schools receive funding based on whether they

²⁷⁴ It is worth noting that Michigan has one of the worst student-to-school nurse ratios in the country. See: Michigan School Nurse Task Force Summary Report 2012. Available at: http://web.archive.org/web/20160101005633/http://www.michigan.gov/documents/mde/SNTF_Final_Report_updated_2012-07-24_395188_7.pdf (Accessed 1/26/17)

are in compliance with reporting deadlines.²⁷⁵ As relevant to immunizations, schools must report whether their students are either vaccinated or waived, so there is the incentive to have parents/guardians sign the forms to meet the reporting requirement, regardless of whether they are philosophically or religiously opposed to vaccination. Yet, an MDHHS employee said that schools are also technically held accountable for poor immunization rates. When I asked about penalizing LHDs with poor immunization rates, the MDHHS employee said, “That’s not our intention. I’d rather, work with them in a positive manner” [State1]. This leaves open the potential for culture and mission to influence policy implementation, as it appears that formal sanctions are not usually applied. Thus, shifting the policy implementation venue was likely a strategic choice, in that it aligned professional culture and incentives to create accountability.

ii. Bureaucrat-Professionals as Street-Level Bureaucrats

This venue shift appears promising, even if the new venue is subject to the ills of street-level bureaucracies.²⁷⁶ There are four ways in which the implementation of the waiver rule is atypical for a street-level bureaucracy. First, the goals of programs implemented by street-level bureaucracies are marred by ambiguity. As demonstrated in Chapter 5, the goals appear to be clear: to provide the education and the waiver in order to improve vaccination rates and protect against infectious disease. Second, programs administered by street-level bureaucracies are difficult to assess due to the difficulty of measuring performance indicators. In this case, LHDs track the number of waivers that are turned in to the school and the state monitors the percentage of students waived, as well as disease outbreaks that are more common in under-vaccinated

²⁷⁵ According to an article in *The Ann Arbor News*, schools lose 5% of their state funding if they do not meet reporting requirements: Freed, Ben. “Washtenaw County schools working to reduce elevated vaccine waiver rates.” *The Ann Arbor News* 08/14/2014. Available at: http://www.mlive.com/news/ann-arbor/index.ssf/2014/08/washtenaw_county_schools_worki.html (Accessed 02/06/17)

²⁷⁶ Although, it bears mentioning that the prior method of issuing waivers at the schools was also subject to these same ills.

areas. Third, performance measurement is also made difficult by the fact that clients are generally from marginalized populations and will not complain about inadequate service because they depend on said services. However, as seen in Chapter 5, waiver clients are not described as disadvantaged and, despite a lack of opportunities for systematic feedback, appear to be willing to voice their displeasure with the sessions. Fourth, in the typical street-level bureaucracy, clients are non-voluntary in that they cannot opt-out of the program or cannot afford a private alternative. In this instance, clients have the opportunity to opt out by vaccinating their children and some may be able to afford private schools that do not mandate vaccination.

However, LHDs may share some commonalities with other street-level bureaucracies. One commonality is lack of resources: Chapter 5 stated that LHDs were not given enough funding to implement the sessions and thus most LHDs did not hire additional staff to accommodate the added responsibility of the waiver education program. However, as described by an immunization supervision staff member at a southeastern health department, LHDs did what they could to implement the program: “if we can utilize some of our already budgeted clinic funds for these part time staff, to do these waiver education sessions, and it ends up doing a demonstrable public good, we're okay with that” [SE6]. This sentiment also suggests that bureaucrat-professionals are focused on longer-term, public health goals and will make the necessary accommodations. Another commonality may be a lack of responsiveness to client needs, which would be indicated by an under-provision of services. In contrast, Chapter 5 reported that LHDs had unused sessions at peak times and missed waiver appointments, indicating that the supply of sessions met or eclipsed demand. Last, LHDs may not be providing appropriate service, perhaps by applying pressure to clients to vaccinate their children. Later, I

examine appropriateness of services in view of the state's role in providing direction and describe the ways in which the state works with LHDs to ensure appropriate service.

B. The Influence of Centralizing Institutions

In this section, I establish that MDHHS played an active role in providing programmatic direction. Through its efforts, MDHHS enhanced the effects of bureaucratic professionalism by facilitating information-sharing among LHDs, as well as providing information directly to the LHDs. While LHDs used their discretion to develop an approach appropriate for their districts, their approach also revealed the influence of the public health profession. This influence was reinforced by MDHHS through the provision of consistent, evidence-based information, and a patient-centered method of addressing vaccine concerns.

i. Direction

From the perspectives of the LHDs, the rule provides them with discretion to implement the waiver education program in the manner most suited to their community. On the other hand, the discretion is not unlimited because the state sets particular parameters that the health departments must follow. In the words of a nursing supervisor from a western health department, “They don't plan our educational sessions. It's just a matter of them providing guidelines on what they would prefer us to do or how they would prefer us to do things, and then we follow those guidelines” [W5]. As mentioned in Chapter 5, the state did not allow health departments to use online modules in lieu of in-person meetings. Throughout the interviews, LHD interviewees mentioned that they were provided with educational and training resources from the state to help guide them in designing their sessions (discussed below). A nurse from a southeastern health department explained that while the state was “100% involved” in the planning, at the same time they were “vague.” From the perspective of the nurse, the state gave general guidance but each

health department had to work within itself to make it happen and to figure out all the details [SE3]. The policy implementation process is decentralized on the one hand, and coordinated on the other: LHDs were provided with discretion as well as direction.

The state figured prominently in the planning phase of the rule: 15 out of 16 LHDs reported that the state was involved in their education session planning.²⁷⁷ Of those, interviewees at 12 of the LHDs also mentioned state-provided training: interviewees cited conference calls, webinars/on-line training, and in-person training with the state. Additionally, 13 LHDs cited the types of materials provided by the state.²⁷⁸ According to a manager from a central health department:

Most of the materials that we use are those that have been drafted and put together for us by the Michigan Department of Health and Human Services. They are tailored to the reason that the parent gives for waiving the vaccinations. If their concern is the safety of vaccines or vaccine ingredients, that's the packet that we give...If a child is not immunized there's also a handout that we give that helps the parents to understand the risk and responsibility if they choose not to vaccinate their children. We also give them what we call a Vaccine Information Statement on all of the vaccines that are being waived that day [C4].

A director from an upper peninsula health department said: “I think their biggest support has been providing lots of materials to the different vaccines and immunizations in children in ways to be able to answer people's questions, to sort out fact from fiction” [UP1]. The training and materials provided by the state was also valued by the LHDs that implemented waiver education

²⁷⁷ The exception was a central health department [C3]. The state was less involved in their planning because the LHD delivered its first waiver session only a couple weeks after the law went into effect. The state resources were not yet available for this health department's planning phase.

²⁷⁸ However, this does not imply that the state drafted all of these documents. As covered in section (2) below, the materials, while recommended by the state, may actually have been generated by other sources.

prior to 2015: A health department that had previously adopted the policy said: “when the state adopted a similar policy to ours...we really enjoyed it because of the support and resources available to us from the state that were not there before. They developed a number of waiver-specific resources for us to use that we were trying to find on our own before.”

In addition to providing materials and training, the state also coordinated and guided LHDs once the waiver sessions were underway. Interviewees at 15 of the 16 LHDs indicated that the state’s involvement has continued into the second year of implementing the waiver education rule. Interviewees at seven of 15 LHDs spoke of the state as a source of feedback, perhaps updating the LHDs about their waiver rate or suggesting changes to LHD approaches. For example, the state changed its guidance to LHDs on religious waivers following a legal complaint (see also section C below).²⁷⁹ Another example was given by a director at a central health department:

I know that the state was providing us feedback on information they have received at their end and, it wasn't in any of our counties, but they had received “horror” stories from others that, according to the parent or guardian, the nurse that they met with was just really degrading...There were a handful of those and the state would send out an email to the immunization community of local health departments to say, “Hey, it's all in the perception, we're not saying it really happened. But, we want to let you know that this is an issue that has been brought to our attention” [C3].

Two mentioned regular interactions with a state immunization consultant [E2, E4]. Five LHDs mentioned meetings or conferences convened by the state, while another five mentioned regular

²⁷⁹ An MDHHS employee did not indicate this guidance on religious waivers was related to the legal complaint. When I asked why their website no longer had a document providing guidance to LHDs on how to handle religious exemptions, the employee said “our administration felt that [it was] in our best interest that we shouldn't have that document posted” [State1].

calls or check-in conversations hosted by the state. And, four LHDs described the state as a clearinghouse where LHDs could exchange ideas about their waiver education session.

ii. Approach

It appears as though LHDs are responsive in terms of providing a flexible format, particularly given that they have the discretion to limit this flexibility. But, it remains to be seen whether the delivery of the session is appropriate, given that this is often a challenge for street-level bureaucracies. How do LHDs approach the individual sessions? Trends noticed by LHDs as well as prior research indicate that, in many instances, individuals seeking waiver education sessions belong to privileged groups: well-educated, and perhaps Caucasian and of a higher income bracket. Additionally, insights from two LHDs [SE3, SE6] indicate that these individuals do not fit the typical client role in street-level bureaucracy fashion: According to an immunization supervision staff member from a southeastern health department,

To be blunt, we've had people say, "I don't want to come and associate with the people who come to the health department," because they think it is the poor and unwashed that show up at our door and that that's the only people that we serve. And so I think it's an educational experience for them to come here and find that yes, we are open to all people in our county and that we are a professional organization that's going to offer them good information [SE6].

These privileged, or advantaged, groups are generally treated with respect and programs are designed to accommodate them (Schneider and Ingram, 1993). Accommodating privileged groups may also have political benefits in addition to policy benefits: by adhering to evidence-

based facts, targeting sessions to individuals' concerns, and being mindful of how they treat clients, LHDs are behaving strategically neutral in the context of this policy.²⁸⁰

Below, I describe how LHDs approach parents and find that LHDs are indeed accommodating and, for the most part, strategically neutral. And, this approach contributes to the LHDs' responsive and appropriate services to individuals seeking a waiver, despite being given discretion.²⁸¹ Meanwhile, state direction also ensures that missteps are corrected moving forward. Again, the combination of discretion and direction mitigates the consequences of street-level implementation.

(1) Session Content

The majority of LHDs stressed that their approach to the session was to provide evidence-based information to clients. In particular, most LHDs (12/16) stated that they gave information on the risks of disease and the benefits of vaccination for the vaccines that the parent/guardian is waiving during the sessions.²⁸² Of these, many LHDs (7/12) also covered policies and/or responsibilities for the non- or under-vaccinated. These included the policy that, in the event of an outbreak, the student would be excluded from school, as well as the responsibility to inform health care providers of their vaccination status: An immunization coordinator from an upper peninsula health department said that they would tell clients,

²⁸⁰ Recall that Huber describes strategic neutrality as helping to “guide public policy toward desired ends while minimizing the likelihood that outsiders will gain sufficient political strength to overrule agency decisions.” (2007, p. 1-2)

²⁸¹ It is important to point out that the parents/guardians receiving waiver education may feel that it is neither responsive nor appropriate. However, waiver education appears to be delivered as appropriately and responsively as is possible based on the rule and the direction of the state. For example, a hypothetical inappropriate session would be one in which the educator used harsh or coercive tactics. An illustration of a hypothetical unresponsive approach would be if an LHD under-supplied education session appointments by only scheduling one hour of appointments one day a month.

²⁸² An immunization supervision staff member from a southeastern health department gave the following outline of what a parent would expect if they came to their LHD: “I let people know up front that I am required to talk to them about risk of disease, benefit of vaccine, and exclusion, that I am interested in hearing about their questions and concerns, and that once we've been able to do that, I'll sign their waiver, and they'll be out the door.” [SE6]

We just want you to be aware that if your child is going into an after-hours clinic or a physician's office, and they have a rash, they're sick, they're coughing, that you just bring it to the attention of the staff, that your child is not immunized, just so that they can keep them separate from somebody who doesn't have an immune system. [UP5]

Interviewees (7/16 LHDs) also indicated that they wanted to provide evidence-based information to parents/guardians, perhaps for the purpose of clearing up misinformation or addressing a lack of information.²⁸³

Providing information based on evidence is part of the professional culture of public health.²⁸⁴ Yet, as the following quote illustrates, LHDs did not push evidence at the expense of the client relationship. As described by an immunization staff member at a southeastern health department,

Part of our preparation and training with our staff was to really focus on how these sessions were simply our opportunity to share best practice, to share scientific information, but at no point were we going to want to get into conflict... We were not going to refute people's research that they had done. We were simply going to share scientific information that we have [SE4].

While interview data indicates adherence to evidence-based information, the above example also provides a sense that staff wanted to focus on sharing and avoid confronting parents during the sessions.

A couple interviewees described methods that went beyond information provision and used scenarios to get parents to think about their underlying reasons for not vaccinating or

²⁸³ Evidence-based information also includes interviewee mentions of “accurate” and/or “reputable” information.

²⁸⁴ Accreditation encourages those in the public health field to practice evidence-based public health, as one of the Public Health Accreditation Board’s domains is “to contribute to and apply the evidence base of public health.” Available at: http://www.phaboard.org/wp-content/uploads/StandardsOverview1.5_Brochure.pdf (Accessed 5/5/17)

different conditions under which the parent/guardian would consider vaccinating [UP5, E4]. The following is an excerpt from a from a health officer from eastern health department:

It all comes down to motivational interviewing and what exactly is it that's keeping them from immunizing and then trying to provide information along those lines...At least one of our nurses, I think a couple of them, take this approach which is, "Well, what if your child was bit by a dog? They're in the emergency room and they hadn't had any tetanus vaccine, would you consider getting a vaccine at that point?" Or, "What if your child goes to college and they staying in the dorm? Would you think about [the] meningococcal vaccine at that point?" [E4]

While such an approach is far from coercive, it does more than neutrally impart evidence-based information and engages with the client and their thought process. Again, however, this approach was mentioned in only two of the interviews.

(2) Clients' Vaccine Concerns

LHDs addressed parents'/guardians' specific vaccine concerns during the sessions: 14 of the 16 LHDs described how they target their sessions to the individual concerns of each parent rather than adopt a more general approach. A northern health department described how they initially held classes, but they replaced the classes with individual sessions: "Our priority was to do individual education so that we could meet the individual's needs. Every parent had a different set of questions and so there really wasn't one standard approach with parents. It really was based on what they identified" [N1]. Immunization supervision staff from a southeastern health department indicated additional reasons for this tailored approach:

We early on made the philosophical decision to tailor the conversation as much as possible to the individual concerns of the clients that were coming in because we didn't

want to waste their time and say, “Okay, we talked about thimerosal, check, formaldehyde, check” because all of a sudden, before you know it, you're wasting somebody's time and there's zoning out, or they're like, “wait a sec, what about formaldehyde?” [SE6]

Most LHDs (13/16) characterized their education session as a discussion or a conversation, allowing the parent/guardian the opportunity to communicate their perspective.

LHDs also provide materials to parents that address their specific reasons for not vaccinating and inform them about the vaccinations their child/children are missing. As described by a nurse educator and a customer service representative from a southeastern health department, they ask clients their main reasons for not immunizing when scheduling the waiver education appointment. Then, they pull materials tailored to these reasons in advance. For example, if the client is concerned about vaccine ingredients, they will make sure to include this handout with the five standard handouts that they give at every session.²⁸⁵ In addition to this information, they give the VIS (Vaccine Information Statements) based on the vaccines that are missing according to the MCIR [SE8]. Other health departments also described the materials they made available to clients: 13 of 16 mentioned using state-provided material (e.g., provided by MDHHS), 10 of 16 mentioned using CDC material including the VIS, and five of 16 mentioned using materials developed by the Children’s Hospital of Philadelphia (CHOP). Additionally, seven of 16 mentioned that shared materials with clients specifically covering either the concerns they have about vaccines or the particular vaccines being waived.²⁸⁶ While

²⁸⁵ The five handouts are as follows: a parent letter provided by the state that addresses key points, an “if you choose not to vaccinate your child” handout, the recommended schedule that has the list of 14 vaccine preventable diseases on the back, an FAQ document that addresses the main concerns about vaccination, and LHD-specific information on clinic schedule hours and a phone number for waiver appointments.

²⁸⁶ Three LHDs mentioned using information from the Immunization Action Coalition, while two mentioned the American Academy of Pediatrics.

LHDs may have gathered materials independent of what the state provided or recommended, no interviewees recalled generating their own materials. An immunization coordinator from a northern health department provided an insight into this decision:

It was purposeful that we didn't develop our own and that we used some of the sources we did so that it wasn't that we were just coming up with our own take or our own twist, that we were being consistent with information that was already readily available out there that was accurate and correct [N1].

In addition, interviewees at two health departments stated that it was important to include materials from non-governmental sources in addition to governmental sources like the CDC [N1, UP6].

(3) Treatment of Clients

In addition to what information is being provided in terms of session content and materials, it is also valuable to consider *how* this information is being delivered. Although I did not ask about it explicitly, interviewees at 15 of the 16 LHDs commented on how their approach aimed to be mindful of parents/guardians and their time. I separated these comments into major categories: parenting, improving client comfort, building relationships with clients, and meeting client needs (see Table 6-2 for a list of sub-themes). Below, I provide examples from each of the themes listed in Table 6-2.

In terms of the parenting theme, some interviewees (6/15 LHDs) mentioned using empathetic and nonjudgmental approaches. For example, a director from an upper peninsula health department said:

I know across the state of Michigan there were a few places where I heard people complaining that some health departments were coming down pretty hard on them. Now,

I don't know if that's true or if that's ever been validated, but surely maybe in some of the bigger cities that could be the case where people walked away feeling very judged and very angry. But I think again our take on it up here has been to try to meet that person where they're at and have a conversation. But, try to keep it so that it doesn't inflate their feelings about being so anti-government [UP1].

This comment also touches upon a second theme, taking a comforting approach that avoids angering the parent (7/15 LHDs). A public health nurse from a western health department described it as follows: “I think one of our goals here really is to start the waiver process with an inviting feeling. There's a lot of stigma about what it is, and we have a lot of parents that can come in not making eye contact, being really short” [W5].

Relationship-building, a third theme, refers to approaches that initiate a relationship with the attendee, perhaps in the hopes of serving as a resource in the future. Respondents from six of 15 LHDs offered reflections about this theme, including an immunization coordinator from a northern health department:

Most of the time, [the clients] come in a little bit bristled, maybe a little bit argumentative and, because of our manner of approaching them that quickly is usually dissipated... Our goal is to try to develop some kind of positive relationship there so that they feel like they can come back to us for services, or they can come back to us for conversation or for anything that they might need, for themselves or their children [N1].

Finally, interviewees at five of 15 LHDs mentioned an approach that met the parents' needs, as illustrated by this comment from an immunization coordinator from an upper peninsula health department: “We know that it's tough, coming in and having to do some of this stuff. But, we try to be respectful of their time and why they're there. But still getting the point across that

we feel immunizations are important” [UP5]. There is also evidence that the states provided advice on how to treat clients: interviewees at three of the 16 LHDs mentioned that they received guidance from the state about “how to approach parents” [UP5] and the importance of “treating people with respect” [UP6].

Table 6-2. Treatment of Clients: Themes from LHD Interviews

| Main Themes | Summary Comments |
|---|--|
| Parenting (6/15) | dispel notion that clients are bad parents (2) empathetic nonjudgmental (3) clients may be scared or fearful (3) validate parents don't chastise or “slam” parent |
| Improving client comfort (7/15) | comfort (3) painless pleasant avoid angering parent (2) polite laid back approach inviting feeling |
| Building relationships (6/15) | use as a resource (2) positive relationship excellent customer service beginning of a relationship keep the door open (2) make a connection |
| Meeting client needs (5/15) | convenience parent's don't need to fight for waiver give clients what they want empowerment respectful of time (2) treat people well |

LHDs managed and absorbed conflict in their interactions with waiver education clients. In addition to creating internal policies that accommodated parents’ needs, LHDs also aimed to treat clients well. LHDs mentioned things like validating the parents, making sure the parents are comfortable, creating a positive relationship, and avoiding the impression that parents needed to fight with LHD staff to get a waiver. And, in the section on content above, I presented a quote in

which an LHD interviewee said that he/she would not challenge a parent's research (e.g., if a parent talked about research that they read about online). Again, research on vaccine-hesitant parents indicates that they tend to be from politically advantaged groups. This suggests that, if the conflict is not managed at the street level, it could spread into the political realm and put the future of the rule in jeopardy. At the same time, these findings illuminate a missing aspect of bureaucratic professionalism: managing and absorbing conflict. While placating vaccine hesitant parents may leave children (and their communities) at risk for communicable disease in the short term, protecting the waiver education rule may be beneficial to public health, and the public health profession, in the long term.

Through the influence of MDHHS and their profession, as well as the nature of the rule, LHD employees are able to deliver the immunization waiver education sessions responsively and appropriately. Importantly, LHDs strive to mitigate conflict during the sessions. However, parents may object to this characterization of the sessions as responsive and appropriate. They may then voice these concerns in the political realm, which may be amplified in the form of legislative and legal challenges. The next section examines the particular challenges to the rule, as well as whether certain aspects of the political environment are perceived as challenges by the LHDs and MDHHS.

C. Political Environment

In the typical street-level bureaucracy, clients are usually wary of complaining about poor service because they are worried about retribution. However, as established above and in Chapter 5, waiver program clients may be atypical because they appear to be better-resourced and thus more likely to voice their opposition to the rule. Below, I examine the LHD's political

environment in terms of the threats and opportunities posed by public support, legislative actions, and judicial actions related to the waiver rule.

i. Public Support

To gauge the extent to which public support may threaten the rule, I wanted to ascertain whether the new rule or the subject of childhood vaccination was considered a concern (or controversial) in the area served by each LHD. For example, I asked interviewees whether they considered childhood vaccination a hot button issue in the area served by their LHD and to generally describe the parents that attended the waiver sessions. From their responses, it was clear that childhood vaccination was indeed a concern in the area served by nine of the departments. Childhood vaccination was not considered a concern in another six, and it was unclear in one health department. According to immunization supervision staff at a southeastern health department:

As far as conversations go that we're involved with on a daily basis, this is the one that is probably going to have the most politically charged thing with it, because, from a public health nursing point of view, most of the time, people want us there. People are there because they've invited us into their homes, or they've come to us, to our clinic seeking help for various needs. We're usually not in the role of enforcing some kind of regulation or rule, such as maybe an environmental health sanitarian is. And so for us, this particular topic is really the diceiest of the dicey topics by far [SE6].

In contrast, a public health nurse at a western health department said that vaccines weren't a subject of controversy: "I know just through discussion with parents that they've talked with other parents amongst each other, but as far as really making a loud voice about it, I don't know

that we've really had that, not to my knowledge” [W5]. The level of controversy is unclear in one health department [UP6] because the two respondents disagreed.

When I asked departments how they knew whether or not childhood vaccination was a concern in their area, interviewees at two health departments cited popular community programs that attracted an audience that they would consider “anti-vaccine,” as well as being contacted by parents [E4, N1] who were for or against immunization waivers. Another interviewee cited the fact that he/she was attacked on a radio program [N1]. In one department, an interviewee recalled a disagreement between parents in the waiting room, where one parent seeking a waiver may have said something to another parent who was there for an immunization [UP5]. Of those departments who did not consider the issue to be controversial, interviewees mentioned a lack of media requests and the fact that the board of commissioners was not involved, which they would usually be if an issue became political [C3, C4].

Interviewees also reflected on whether parents in their area were acting as individuals or as part of a larger, vaccine-critical movement. Interviewees from seven health departments described parents as acting individually or connecting to groups very loosely, such as through Facebook. For example, a public health nurse from an eastern health department reflected: “I don't believe they're in any sort of organized group as far as what I observe. They all seem to have their own ideas and their own reasoning” [E2]. And, a medical director from a northern health department described those within his/her department's jurisdiction as an “independent thinking population” who like “making their own decisions, independent of authorities” [N1]. On the other hand, interviewees from four health departments believe that there are vaccine-critical groups active in their area. This was indicated by parents mentioning either formal or informal like-minded groups during their waiver sessions, or commonalities that indicated coordination

among group members. According to a manager from a central health department, “Many of [the parents] follow some anti-vaccine programs or organizations...and they will reference that in their waiver education session” [C4]. An immunization staffer from a southeastern health department described an instance of coordinated behavior: “Recently the state has had a lot of pushback from anti-vaccine groups, and they are actually getting information that they’re saying “well, come in and get a religious waiver because they can’t question you about religion”” [SE4]. Thus, there appears to be some vaccine-critical interest group activity, but it is not present in all parts of the state.

Hardly any interviewees mentioned specific vaccine-critical groups by name.²⁸⁷ According to Guidestar, a database of nonprofit organizations, there is one vaccine-oriented health advocacy organization registered in Michigan, Michigan for Vaccine Choice (MVC).²⁸⁸ This group focuses on the rights of parents to decide whether or not to vaccinate their children. A nurse from a southeastern health department mentioned the precursor of MVC in our interview, saying that the organization provided fake waiver forms (i.e., a whited-out version) for parents to download online and submit to the child’s school [SE3]. The fake forms were discovered because the health department keeps a copy of the waiver forms on file, so the waiver forms that the school submitted did not match up to what the health department had in its records. Other interviewees made vague reference to an “anti-vaccine” group or groups, but did not identify the

²⁸⁷ Pro-immunization groups came up in the context of session planning and implementation. The American Academy of Pediatrics, Immunization Action Coalition, and Children’s Hospital of Philadelphia were all mentioned as sources of reputable, pro-immunization information for parents.

²⁸⁸ I used Guidestar’s search function of E01 organizations (health advocacy organizations) and employed “vaccine,” “vaccination,” and “immunization” as search terms. Additionally, a news search of articles related to the waiver law identified a second group, Michigan Opposing Mandatory Vaccines (M.O.M) (see Crumm, Charles (2016). Fewer parents seek immunization waivers in Michigan. *The Oakland Press*. 8/26/16 Available at: <http://www.theoaklandpress.com/special-news-reports/20160826/fewer-parents-seek-immunization-waivers-in-michigan>). But, it appears that the group is now part of M.V.C. (<http://house.mi.gov/sessiondocs/2015-2016/testimony/Committee335-9-9-2015-2.pdf>, accessed 1/5/17)

groups [SE4, C4]. At the national level, Dawn Richardson of the National Vaccine Information Center (NVIC) spoke out against Michigan's new rule:

*In Michigan, state health officials abused their rule making privileges and failed to adequately inform the public and solicit feedback from families negatively impacted by restriction of non-medical vaccine exemptions. The Michigan legislature should make it a priority in the new session to quickly rescind the new rule, which endorses state-sanctioned discrimination against and coercion, harassment and intimidation of families making informed vaccine choices by assuming they are ignorant and in need of re-education.*²⁸⁹

It is worth noting that the Michigan Department of Community Health followed the administrative procedures set forth by the state, meaning that they provided public notice and comment opportunities, as well as submitted a report to the legislature's bipartisan Joint Committee on Administrative Rules (JCAR), prior to the rule's adoption.²⁹⁰

From the LHD perspective, it is unclear whether they perceive public support as a threat to the rule. Questions that touched on the level of public concern or controversy surrounding childhood vaccination yielded responses that ranged across the 16 LHDs. Concern was not uniform throughout these health departments, as a slight majority (nine LHDs) felt that childhood vaccination was a hot button issue in their area and another six did not see it as a charged issue. At the interest group level, although MVC and the NVIC are aware of the new rule, it is unclear from the LHD's standpoint whether these groups are involved in formal or

²⁸⁹ This quote was taken from the National Vaccine Information Center Newsletter. "Michigan Guts Vaccine Exemptions While Ohio Saves Them." 12/29/2014

²⁹⁰ I obtained the Regulatory Impact Statement & Cost-Benefit Analysis, as well as the JCAR report including the public comments, from the Michigan Office of Regulatory Reinvention (received 1/24/17). The interview with two MDHHS employees provided corroborating information about the steps the state took in proposing and adopting the rule.

informal actions against the rule.²⁹¹ Based on this lack of uniformity, LHDs do not face the same public pressures when implementing the waiver rule.

I also asked interviewees at the state level whether they considered public opinion when they wrote the rule. An MDHHS employee said,

We considered it, but we also knew that the vast majority of the parents in Michigan think vaccines are a smart idea, a wise idea, and support them. We knew that the vast majority of the population would be in support of this, and so we did consider that and figured we were doing the public good [State1].

While the state considered public opinion in their decision-making, the fact that the majority of Michigan parents vaccinate their children meant that they would move forward with the rule to benefit the public's health.

ii. Legislative Threats and Opportunities

State legislatures make decisions about which childhood vaccines are required for school entry and whether nonmedical exemptions and waivers are permissible. However, legislative activity was not a key theme in interviews with LHDs. Legislative actions were mentioned in interviews with only two LHDs [E4, UP6]. It is important to note that I did not ask LHD interviews about legislative actions explicitly, but I asked a number of open-ended questions that provided interviewees with opportunities to mention such actions over the course of the interview. Interviewees discussed the legislature in the context of the goals and objectives of the rule [E4], changes in implementation [E4], or parting comments [UP6]. A health officer from an eastern health department recalled:

²⁹¹ There are additional vaccine-critical groups (see for example, a listing in Kirkland, 2012), but they were not mentioned in the interviews or document analysis.

I don't think it was very problematic here particularly, but there was discussion that there were parents that went to their legislators and said, “[the] health department staff were very hostile. They made me feel bad. They shamed me.” There were all kinds of things that were said. Whether that really happened in any of the health departments or not, I really can't say...I think [we] backed off even a little bit further after all those things occurred because we don't want the legislators to back out of this law and at one time, or maybe even still, there's some threat that that will happen [E4].

And, a public health nurse from an upper peninsula health department [UP6] mentioned that it might be beneficial for this project to look into several recent pieces of legislation that would affect waivers. I did ask state-level interviewees about the legislature. An MDHHS employee described the legislative support for the rule:

From legislative perspective, we did have support from some of the legislative offices in drafting this. And if you know the administrative rule process, before they are implemented, there needs to be an approval from JCAR, the Joint Committee on Administrative Rules, which is a legislative process. [The rule] was approved through that committee [State1].

While the legislature received little mention in interviews with LHDs, I also reviewed legislative activity both before and after the waiver rule’s adoption. The Michigan legislature did not propose any bills to address the state’s waiver rate between 1998 and 2012 (Lillvis, Kirkland, and Frick, 2014).²⁹² Similarly, in 2013 and 2014, there were no immunization-specific bills that

²⁹² The only waiver-related bill introduced between 1998 and 2012—2002 SB 1209—would have made it easier to obtain a waiver by enabling parents to qualify for an exemption if there was family history of complications associated with an immunization (Lillvis, Kirkland, and Frick, 2014).

addressed the waiver rate.²⁹³ However, in both years, appropriations bills contained text instructing the Department of Community Health to develop a plan to improve child immunization rates. And, in 2014, an appropriations bill passed containing the following language:

*Sec. 852. The department shall develop a plan designed to improve Michigan's childhood and adolescent immunization rates. The department shall engage organizations working to provide immunizations and education about the value of vaccines, including, but not limited to, statewide organizations representing health care providers, local public health departments, child health interest groups, and private foundations with a mission to increase immunization rates (MI PA 252'14).*²⁹⁴

It is important to note that, while planning does not necessarily lead to rulemaking, the department did finalize its immunization waiver rule subsequent to the passage of this bill.²⁹⁵ At the very least, the appropriations bill served as a signal that the legislature desired an improvement in immunization rates.

Following the January 1, 2015 effective date of the waiver rule, legislators proposed several bills that would have either strengthened or weakened the rule.²⁹⁶ Specifically, four bills would have undermined the waiver rule, while five bills would have supported the intent of the rule. For example, SB 1039 and 1040 (2016) would have prevented the department from promulgating more stringent immunization exemption rules and eliminated the parental

²⁹³ Bills during the 2013-2016 time period were located using the Michigan Legislature's bill search function with keywords "vacc*" OR "immuniz*", where * denotes a wildcard character. Bill descriptions were reviewed for relevance and full bill text was consulted for all potentially relevant bills. These bills were cross-referenced with the state bill tracking service from the National Vaccine Information Center, a vaccine-critical organization.

²⁹⁴ Full text of the law is available at: <https://www.legislature.mi.gov/documents/2013-2014/publicact/htm/2014-PA-0252.htm> (accessed 1/3/17)

²⁹⁵ This wording was not included in any bills prior to its appearance in a 2013 appropriations bill (i.e., between 1995 and 2012).

²⁹⁶ Note that this section discusses bills and their status as of 1/3/17.

education requirement as a condition of receiving a waiver. In contrast, HB 5364 (2016) would have expanded the reportable grades from kindergarten and seventh grade to include second and fifth as well. This would mean that parents would need to attend waiver education sessions four times for each child instead of two. See Table 6-3 below for a summary of the proposed bills.

The primary sponsors are divided on party lines, where Republicans sponsored bills that sought to undermine the rule and Democrats sponsored bills that sought to support the rule.

Interestingly, the five bills in support of the rule had two Republican co-sponsors, while the bills that would have undermined the rule had no Democrat co-sponsors. Thus, the legislative signals appear somewhat mixed, but suggest a more pro-vaccine orientation overall: bill sponsorship indicates that Democratic legislators tend to support the rule—which, again, was adopted by a Republican executive branch—along with some Republican legislators.

Table 6-3. Michigan Bills with the Potential to Support or Undermine the Waiver Rule*

| Year | Bill | Relationship to Waiver Rule | Purpose | Primary Sponsor (Party) |
|------|---------|-----------------------------|--|-------------------------|
| 2015 | HB 5126 | Undermine | Prohibit from excluding child from school; Exemption information should also include information about immunization effectiveness and risk. <i>Tie bar with HB 5127</i> | Thomas Hooker (R) |
| 2015 | HB 5127 | Undermine | Promulgate rules except as provided by MCL 333.9215 (this can be interpreted as prohibiting the department from requiring more than a parental statement for exemption). <i>Tie bar with HB 5126</i> | Thomas Hooker (R) |
| 2016 | SB 1039 | Undermine | Prohibit promulgation of more stringent exemption rules. <i>Tie bar with SB 1040</i> | Patrick Colbeck (R) |
| 2016 | SB 1040 | Undermine | Prohibit promulgation of more stringent exemption rules and exclusion of children from school. <i>Tie bar with SB 1039</i> | Patrick Colbeck (R) |
| 2016 | HB 5361 | Support | Require parents to obtain immunization waiver form from the health department; requires health department to inform parents of the benefit of vaccination prior to issuing form. <i>Tie bar with HB 5362</i> | Marcia Hovey-Wright (D) |
| 2016 | HB 5362 | Support | Eliminate parental statement language from school code; form is instead provided by the health department. <i>Tie bar with HB 5361</i> | Winnie Brinks (D) |
| 2016 | HB 5363 | Support | Require collection and parental notification of immunization and waiver rates. <i>Tie bar with HB 5364</i> | Winnie Brinks (D) |
| 2016 | HB 5364 | Support | Expand requirements for statements of exemption to grades 2 and 5. <i>Tie bar with HB 5363</i> | Winnie Brinks (D) |
| 2016 | HB 5365 | Support | Permit the exclusion of children from schools if there is a risk of spreading communicable disease. | Marcia Hovey-Wright (D) |

*As of 1/3/17, none of these bills passed into law.

In addition to bills introduced, I was able to locate testimony from one committee hearing on the implementation of the waiver education rule, which was held on September 9, 2015 and discussed on MVC's website.²⁹⁷ The particular meeting was a Joint Committee Meeting of the House Standing Committee on Health Policy and the House Standing Committee on Families, Children, and Seniors.²⁹⁸ Of note, the Chair of the Committee on Families, Children, and Seniors, Representative Hooker, sponsored two of the bills seeking to undermine the waiver rule. Three representatives from the Michigan Department of Health and Human Services were the first individuals to speak.²⁹⁹ The House's website also contains testimony from five individuals, three of whom spoke against the rule. Those speaking against the rule all mentioned the variation from one LHD to the next. A representative from MVC spoke about the variation in LHD approaches to waiver education, where some LHDs "clearly value the right of the parent to exempt their child and even have expressed their disdain for being put in this position of requiring this education" and others "are lead by 'zealots' who have used this as an opportunity to bully and harass parents and move their agenda forward."³⁰⁰ Another example comes from an attorney's testimony which stated that "Local Health Departments and schools across the state are creating different conflicting, and inappropriate exclusion and waiver policies based upon their interpretation of the rule."³⁰¹

²⁹⁷ MVC's information about the hearing is available here: <http://mom.shapelessdigital.com/2015/09/10/joint-committee-hearing-on-the-administrative-rules-change-related-to-waivers/> (Accessed 1/23/17)

²⁹⁸ The minutes are available at <http://house.mi.gov/SessionDocs/2015-2016/Minutes/Heal090915.pdf> (Accessed 1/24/17). The testimonies are available on the Michigan House of Representatives' website: <http://house.michigan.gov/MHRPublic/CommitteeInfo.aspx?comkey=335&year=1516> (Accessed 1/24/17).

²⁹⁹ This testimony was not made publically available through the House's website, <http://house.michigan.gov/MHRPublic/CommitteeInfo.aspx?comkey=335&year=1516>

³⁰⁰ Testimony of Joel Dorfman, <http://house.mi.gov/sessiondocs/2015-2016/testimony/Committee335-9-9-2015-2.pdf> (Accessed 1/24/17)

³⁰¹ Testimony of Allison Lucas, <http://house.mi.gov/sessiondocs/2015-2016/testimony/Committee335-9-9-2015-7.pdf>

As noted above, there are many reasons why parents/guardians object to vaccination. This is also reflected to some extent by participant legislative testimonies. The two testimonies in support of the rule focused instead on their departments' experiences implementing the rule and concluded with the important role vaccines play in preventing communicable diseases. The health departments focused on those parental vaccine safety concerns that are not borne out by the scientific literature (e.g., that vaccines cause autism), which perhaps reflects the clientele in their districts.³⁰² The three testimonies against the rule all focused on the fact that the rule infringes upon parental rights.

iii. Judicial Threats

Childhood vaccination policies can be reviewed by the judicial branch. One prominent example is the 1905 Supreme Court *Jacobson v. Massachusetts* decision, where the court ruled that vaccine requirements were legitimate and recognized the need for medical exemptions (Colgrove and Lowin, 2016). More recently, two federal court decisions in 2002 struck down Arkansas's nonmedical exemptions because they found that they discriminated against individuals who held sincere beliefs but were not part of an organized religion (Salmon *et al.*, 2005).³⁰³ But, no court has ruled that the constitution requires that individuals have access to a religious exemption (Colgrove, 2006). I asked state-level interviewees whether they considered the perspective of the courts when they were writing the rule, and an MDHHS employee said that they "were following the proper steps to implement the administrative rule" [State1].

³⁰² Testimony of Dr. Gillian Stoltman, <http://house.mi.gov/sessiondocs/2015-2016/testimony/Committee335-9-9-2015-1.pdf> (Accessed 1/24/17); Testimony of Michelle Thorn, <http://house.mi.gov/sessiondocs/2015-2016/testimony/Committee335-9-9-2015-6.pdf> (Accessed 1/24/17)

³⁰³ In 2003, the state legislature passed a new exemption law that included the ability to exempt children from vaccination for reasons of personal belief (Salmon *et al.*, 2005).

No cases involving the waiver rule were heard in 2015 or 2016.³⁰⁴ To find legal complaints, I searched the text of Michigan newspapers following the 2015 effective date and found one current legal challenge to the rule.³⁰⁵ The challenge is being brought by a mother in Southeast Michigan who was unable to obtain a waiver based on religious reasons.³⁰⁶ The mother is a nurse and a Catholic and states that her religious beliefs prevent her from vaccinating her children. While the Catholic Church does not ban individuals from receiving vaccination, the text of the lawsuit provides the following explanation: “[The mother’s] personal religious beliefs also oppose all vaccines, even those that are not manufactured from aborted fetal cells, because she believes that the body is God’s temple and injecting it with chemicals that permanently alter the body violates the will of God” (Nikolao v. Lyon, 2016). The lawsuit states that the mother’s first and fourteenth Amendment rights were violated, and suggests that the mother’s religious beliefs were interrogated by a government employee.

Rare mention was made of judicial actions in LHD interviews and I had the sense that departments were unwilling to discuss this topic on the record.³⁰⁷ Instead, interviewees mentioned the fact that MDHHS instructed them not to talk about religion in the waiver appointment. According to a nurse from a southeastern health department, MDHHS previously had a handout of all of the religions and their stance on vaccination (e.g., something from the Archdiocese about vaccination for Catholic parents) [SE3]. Now, in another example of state-

³⁰⁴ I used Google Scholar and LexisNexis Academic and selected Michigan Court of Appeals and Supreme Court, as well as the 6th circuit federal court. I reviewed cases that resulted from searches of the particular code (325.176) as well as search terms “waiver law and immunization or vaccination” and “exemption immunization or vaccination.”

³⁰⁵ I used the NewsBank database and searched for articles in Michigan that contained “immunization” or “vaccination,” “exemption or waiver,” “court,” not “animal,” and appeared after 12/31/2014.

³⁰⁶ Crumm, Charles (2016). Fewer parents seek immunization waivers in Michigan. *The Oakland Press*. 8/26/16 Available at: <http://www.theoaklandpress.com/special-news-reports/20160826/fewer-parents-seek-immunization-waivers-in-michigan>

³⁰⁷ To illustrate interviewee reluctance to go into detail, when asking about how LHDs evaluate the sessions, an immunization coordinator from a south central health department stated “there have been some concerns, statewide recently about specific areas, and we take that into consideration and, all of their guidelines, their recommendations” [SC2].

coordinated efforts, the state instructed LHDs not to ask about religion, and instead to provide information about the benefits of vaccination, the risk of disease, and issue the waiver without going into specifics about the religious objection [SE3, SE4, SE5, SE8].

Although there are a handful of legislative and legal challenges to the rule, these did not arise as prominent themes in the interviews. While this may be due to a reluctance to talk about such matters, it also appears that the state is proactively addressing certain concerns at the LHD level so that they do not negatively affect rule implementation.

IV. Discussion

As demonstrated in Chapter 5 and this present chapter, LHDs utilized their discretion to make the waiver education sessions highly accessible to vaccine-hesitant parents by offering sessions at convenient times, allowing parents to choose whether to bring their children, and taking a respectful approach. LHDs utilized their expertise and professional networks to plan the sessions and deliver evidence-based content. MDHHS played an important role in directing how LHDs used their discretion by providing resources that LHDs can give to parents and training sessions for LHD staff, which led to a certain amount of consistency across departments. MDHHS also reinforced the in-person aspect of the sessions as well as the parent-centered approach described above.

This accessible, parent-centered approach appears at odds with a public health culture that values vaccination as an essential weapon in the fight against infectious disease. However, while the objective of the rule is to provide education to parents, the key mechanism behind the rule's success is most likely the "inconvenience" factor, to use Navin and Largent's (N.d.) term. That is, in requiring all parents to either make an appointment for education or vaccination, it is

equally burdening vaccinating and non-vaccinating parents. The end result is that parents without objections to immunizations are now vaccinating their children. And, a small minority of parents opt to vaccinate their children as a result of attending the education session.

Placing responsibility for the waiver program in the hands of the LHDs and removing it from the schools appears to be strategic move by MDHHS, as it set up the potential for stronger implementation and enforcement of childhood immunization policies. This was a significant move because schools have an educational mission and prioritize attendance, while LHDs have a public health mission and prioritize vaccination. Thus, the shift in venue aligned mission and performance measurement in favor of vaccine education and against issuing waivers for convenience sake rather than true philosophical or religious objection. Additionally, as MDHHS funds and accredits the LHDs, there is an accountability mechanism in place. The state provides direction to enhance the rule in terms of its political viability by steering LHDs away from known issues such as interrogating clients' religion and failing to provide information on vaccine side effects. This approach—blending decentralized, local-level implementation with centralized, state-level direction—may help protect the rule from political threats. It avoids unifying opposition to the rule through a tailored approach that addresses the needs and concerns of the local population. It also enables the LHD to display neutral competence by delivering education in an effective and respectful manner. And, if a misstep occurs, the state can provide centralized direction to steer LHDs away from the offending topic or practice. In this way, MDHHS helps LHDs avoid providing inappropriate service, a common pitfall of street-level bureaucracies.

This chapter reveals a new aspect of bureaucratic professionalism. In Chapter 2, I defined bureaucratic professionalism as self-regulating, networked experts within a government agency. Chapters 5 and 6 suggest another facet of bureaucratic professionalism: conflict management and

absorption. This conflict is inherent in the waiver sessions: parents are inconvenienced by having to visit an LHD to obtain their waiver rather than simply sign one at their child's school. Additionally, the parent and the immunization educator are aware that they are on conflicting sides: many waiver-seeking parents are strong in their commitment not to immunize and LHDs have a pro-immunization stance. Demographically, vaccine-critical parents may be more politically efficacious than the typical LHD client (e.g., in terms of wealth and educational attainment (Reich, 2016)). Given their commitment to immunization, LHD staff would like to lower the waiver rate and it appears that the new rule is having this effect, But, given the requirement to deliver education sessions to parents, LHD adopt a strategy of conflict management in their treatment of parents. This respectful treatment, in combination with accommodating policies, absorbs parental animus toward the rule. This conflict absorption likely safeguards the political future of the rule and its public health benefits.

Michigan's immunization waiver rule is unique in a couple of respects. While a handful of states include education as a condition of receiving an immunization waiver for a nonmedical reason, Michigan is the first to require in-person meetings at the LHD. Rather than completely centralize the education at the state level, or require pediatricians to issue the education, the state has given LHDs discretion to implement the sessions coupled with ongoing guidance from MDHHS. Finally, the education program is the result of a rule that was promulgated by the MDHHS. This rule takes advantage of the department's public health authority to promote immunization and did not emerge following a recent act of the legislature. Thus, it is unsurprising that the rule's critics question the legitimacy of the rule based on the lack of involvement by elected officials and lack of uniformity in LHD implementation.

This study has several weaknesses. First, results are dependent on the coding of a single researcher. I plan on hiring an additional coder such that inter-coder reliability can be assessed. Second, I was unable to assess whether variation in implementation affects waiver outcomes because the individuals can travel to different counties to obtain their waiver. Third, it is difficult to isolate the effect of professionalism as separate from centralizing institution because MDHHS is also comprised of professionals. Fourth, Michigan has been under unified government during the creation and implementation of this rule. Therefore, it is difficult to ascertain whether assessment of political threats would be the same under divided government. Fifth, this study considers a single case in which LHDs are charged with providing mandatory vaccine education as a condition for a waiver. However, the study's conclusions about the relationship between professional discretion, state direction, and the political environment would be strengthened by a comparison with other cases. Namely, it would be helpful to compare Michigan's experience with that of Arizona and Utah, which gives the LHD the option of providing education.

V. Conclusion

When implementing the immunization waiver education rule, Michigan public health professionals appear to be focusing on the ends rather than the means. At first, utilizing scarce public health resources and professionals' expertise and networks to accommodate individuals who, even after receiving education, refuse to vaccinate their children, appears to run counter to what we would expect of the public health professional community.³⁰⁸ On the other hand, more burdensome exemption policies have been shown to improve vaccination rates. In Michigan, the first year's worth of waiver data following the rule indicated that the rule is indeed having a positive effect in getting more parents to vaccinate their children. MDHHS, a bureaucracy that

³⁰⁸ I should also note that some parents may have their children on alternative vaccination schedules. These parents do vaccinate their children, but the children's alternative schedule may not align with the required school schedule.

houses public health professionals, may be playing a professional self-regulating role by reinforcing appropriate treatment of parents that mitigates potential political opposition. As a result, LHDs are able to set aside their proximate public health goals of vaccinating individual children for the long-term goal of improving the immunization rate of their community at large.

In prior chapters, I theorized that expertise and networks promote bureaucrats' implementation behaviors such as rulemaking. Yet, self-regulation—specifically, concerns about reputation—will reduce bureaucrat-professionals' rulemaking behavior amid political conflict (i.e., divided government). Evidence from Chapter 4 supports the notion that bureaucrat-professionals will limit their behavior during political conflict. From the view of the profession, reputation and implementation authority are better preserved for future use than squandered during a temporarily challenging political climate. However, there are instances in which policy implementation cannot be delayed, such as in the delivery of a mandated program whose goals are in alignment with the agency's mission and the profession's culture. In these instances, bureaucratic professionals will instead seek to manage conflict while achieving improvements in their policy domain. Thus, bureaucratic professionals utilize their expertise, in conjunction with their information-sharing and support networks, to implement policy. However, they also are subject to self-regulation by, and manage conflict on behalf of, their profession. Together, these aspects secure the future of their profession and long-term policy benefits for their community.

Chapter 7

Conclusion

In 1999, Missouri and Kansas considered whether to mandate the hepatitis B vaccine for students entering the seventh grade. Three years earlier, the Missouri state legislature had added hepatitis B to the list of mandated vaccines for kindergartners, which meant that some students were too old to be affected by the mandate.³⁰⁹ To address this gap, Missouri proposed and eventually adopted a rule that added Hepatitis B to the list of required vaccinations for seventh graders. Kansas considered a similar school entry bill in 2000 (HB 3049), but this effort died in committee. While it is difficult to find examples of rules that were not proposed, a news article mentions a draft of a potential hepatitis B regulation in nearby Kansas. According to the article, “The rule would require that children enrolled in public and private schools be vaccinated against hepatitis B by their 11th birthday.”³¹⁰ Kansas did not end up proposing this rule in 2000.

Why did this rulemaking occur in Missouri, but fail to occur in Kansas? The governor of Missouri was a Democrat and the legislature was controlled by the Democratic Party. Kansas was not under unified government, in that the Governor and only one legislative house was controlled by the Republican party. However, Missouri had a greater proportion of health professionals working in government than Kansas. In fact, 6.6% of Missouri’s state employees were health professionals, putting the state in the 90th percentile of my dataset. On the other

³⁰⁹ The related bills are MO HB 904, HB 788, and HB 966. The law also stated that, “The Department of Health is allowed to modify this list by rule and regulation.”

³¹⁰ Uhlenhuth, Karen. “Shot with controversy: Debate grows as inoculating seventh-graders for hepatitis B becomes mandatory in Missouri schools.” *The Kansas City Star* (MO) August 16, 1999.

hand, Kansas was below the mean in terms of the proportion of health professionals serving in state government. My analysis in Chapter 4 suggests that rule proposals may have been less likely in Kansas.^{311, 312}

This dissertation examined the conditions that affect agency policy implementation behavior. As the Missouri and Kansas rulemaking examples illustrate, the extent of health professionals can affect rulemaking behavior. However, politics also has an effect, as health professionals are increasingly reluctant to propose rules under divided government conditions. Additionally, these examples demonstrate that agency rulemaking authority is threatened in practice as well as in theory. In the years following this rulemaking, several bills were introduced that aimed at rolling back agency authority to add immunizations in Missouri. For example, 2004 SB 1286 stated that, when the Department of Health and Senior Services makes rules, “[s]uch rules shall not require immunizations not specified by this subsection.” While none of these bills made it into law, they indicate that professionals’ concerns about risks to statutory authority may be warranted.³¹³

In this concluding chapter, I summarize my findings and provide some parting observations. I expand on the notion that professionals respond to direction when determining when and how to use their policy discretion. While this dissertation focuses on bureaucratic professionals within state and local health agencies, I outline some aspects that may be generalizable to other agencies and levels of government. I also describe additional lines of

³¹¹ I acknowledge that the marginal effect of switching from unified to quasi-divided government at higher levels of bureaucratic professionalism is not significant (i.e., $p < 0.05$). However, note that Figure 4-7 shows a negative trend.

³¹² Kansas did promulgate a rule in 2004, again while having a lower percentage of health professionals. But, the government shifted from unified to divided. My results in chapter 4 suggest that marginal effect of divided government at lower levels of health professionals would not have a statistically significant effect on rulemaking.

³¹³ But see Kansas, which did not issue legislation following agency rulemaking in 2004.

inquiry that have the potential to enhance and extend the analysis presented herein. I finish by providing potential implications for public health policy that can be derived from this analysis.

I. Summary of Findings

This dissertation examined the conditions under which bureaucrats use their discretion to implement policy. I focused on one specific area of state health policy, childhood immunization policy, and explored the ways in which professional identity affects policy implementation decisions.

In Chapter 2, I discussed ways in which bureaucratic professionalism can be defined and measured. Following a review of existing definitions of professionalism in the literature, I defined the concept of bureaucratic professionalism as those individuals within an agency who benefit from and are subject to the expertise, information-sharing and support networks, and self-discipline contained within a profession. I introduced a theory of how bureaucratic professionalism affects agency policy implementation in a separation of powers system. I refined this theory by interviewing state government employees and professional association representatives and incorporating their insights and observations. The resulting theory considered the costs and benefits of implementation behavior from the perspective of the individual bureaucrat. Benefits such as expertise, as well as access to information-sharing and support networks, lower the costs of bureaucrat-professionals' implementation behavior. But, these benefits come at a cost: I theorized that concerns about the professions' reputation and public health policy constrain bureaucratic behavior when it is more difficult to determine the legislature's policy preferences, as is the case under divided government. I built on this theory, proposed specific hypotheses, and tested this theory in Chapter 4.

In Chapter 3, I examined why there is variation in bureaucrat-professionalism across the U.S. states. In particular, why might a state legislature or governor prefer agencies to be highly professional at some times but not others? I employed four different measures of bureaucratic professionalism: the salary of the health agency head, share of medical professionals in state government, the percentage of non-clerical workers in the public health agency, and percentage of public health professionals in the public health agency. Two of my hypotheses were supported (although weakly and inconsistently), while a third was not supported by my findings. First, there was some support for the hypothesis that when the legislature is more professionalized, bureaucracies have less professionals, all else equal. Second, there was some support for the hypothesis that legislative professionalism has a positive effect on bureaucratic professionalism under divided government conditions. These findings offered limited support for my hypotheses and were not consistent across all measures of the dependent variable.

In Chapter 4, I elucidated how and under what conditions variation in bureaucratic professionalism affects state public health policy as a central test of my thesis. I constructed an original dataset of childhood immunization rules from 1998 to 2012 and focused on the following conditions: the level of bureaucratic professionalism, the presence of divided government, and the existence of a board of health. I estimated count models and controlled for variables such as the party of the governor, legislative professionalism, budgetary resources, and demand for regulation. I found that states with a greater proportion of bureaucrat-professionals in state government propose fewer immunization rules under divided government. However, these findings were significant only at higher levels of legislative professionalism. And, I failed to reject the null hypothesis when examining adopted rules. I surmised that this was because reputation—and hence, bureaucratic professionalism—plays a greater role in rule proposal stage.

Overall, my results support my theory of bureaucratic professionalism in that health professionals will not use their discretion under all political conditions. Due to their desire to affect health policy, these professionals are reluctant to propose rules if it puts future rulemaking authority in jeopardy.

I then shifted my focus from rulemaking to program implementation to understand how bureaucratic professionalism and politics affect a different type of agency behavior. In Chapter 5, I conducted a case study to examine how LHD employees implemented a recent Michigan childhood immunization waiver rule. This rule requires parents who want to exempt their children from vaccination for a nonmedical reason to attend an education session at the LHD. I first summarized the approaches taken by five other states that provide education to exemption-seeking parents to justify my focus on Michigan. I then interviewed individuals from a representative sample of Michigan's local health departments (N=16 LHDs) to find out how these LHDs plan, execute, and evaluate the immunization waiver education sessions. I found that LHDs received limited funding that required them to reallocate staff in order to deliver education sessions. The parents that attended the sessions had many reasons for vaccine hesitancy, although vaccine safety concerns were cited most often by LHD interviewees. Importantly, LHDs appeared to be using their discretion to accommodate vaccine hesitant parents (e.g., providing flexible hours, allowing parents to attend sessions outside their home county). Any internal policies that were unaccommodating (e.g., requiring children to attend) were phased out. While this chapter focused on the internal considerations of the LHDs in implementing the rule, the next chapter considered how external influences affected LHD implementation.

Chapter 6 then examined the role of bureaucratic professionalism in program implementation, as well as the influences of political environment and the state on

implementation. I again utilized the interviews with LHD and MDHHS employees, and contextualize this data with additional primary sources such as proposed legislation and legal complaints. I found that shifting the implementation venue from schools to LHDs was a strategic choice: it placed responsibility for waiver education delivery in the hands of public health professionals who are being evaluated based on public health indicators. Second, while granting discretion, MDHHS also provided guidance to the LHDs to divert efforts away from problematic implementation decisions toward neutral session delivery. Third, I uncovered another aspect of bureaucratic professionalism: conflict management and absorption. Rather than risk angering politically efficacious parents, bureaucratic professionals delivering the sessions practiced accommodation and respect to diffuse the potential for conflict. Perhaps as a result, interviewees did not appear particularly concerned about legislative or judicial threats to the rule. Their actions indicated that they are proactive in addressing problems that may motivate politically advantaged parents to mobilize against the waiver rule. Similar to what I found in Chapter 4, it appears that professionals working within public health take the long view of policy implementation. Rather than focus on the immediate public health objective of vaccinating every child, LHDs (under the state's guidance), instead focus on educating parents and eliminating waivers of convenience, with the end result being improved vaccination rates in the state.

In this dissertation, I employ a mixed methods approach to examine how bureaucratic professionalism influences policy implementation. There are a number of strengths to adopting this approach. Qualitative research can help researchers refine their concepts and theories by incorporating the insights and understandings of the study participants, as seen in chapters 2, 5, and 6. These theories are then more plausible for the phenomena being studied and can enhance the validity of the quantitative findings that follow. Qualitative research can also provide rich

explanations of complex phenomena that go beyond the constraints of numerical data. Additionally, it can alert the researcher to potential problems with data quality prior to undertaking large-n analyses based on the experiences of those collecting the data, such as the issues discussed in Chapter 5. While qualitative research may not always be generalizable beyond the specific case studied, quantitative research can provide multiple comparisons that alleviate this concern. Quantitative research also lends itself better to hypothesis testing and is not subject to the same amount of bias because the data is, in a sense, more objective.³¹⁴ The complementarity of qualitative and quantitative research is a major strength of adopting a mixed methods approach.

However, there are also potential weaknesses. As relevant to this dissertation, the different approaches of qualitative and quantitative research can lead to diverging results. While the initial chapters of the dissertation examined particular aspects of bureaucratic professionalism, the final chapters revealed a novel aspect that was not evident in earlier chapters. Yet, it is important to acknowledge that the initial chapters focused on state-level implementation, while the latter chapters focused on local-level implementation. So, the divergence is not simply a product of mixed methods research.

II. Discretion with Direction?

In the health policy realm, bureaucrats may be given discretion to implement policies to protect and promote the public's health. However, discretion is not a tool to be wielded blindly. Bureaucrats take cues from other entities when deciding how or whether to wield their discretion to implement policy. The two entities explored here are professions—specifically medical professions—and centralizing institutions.

³¹⁴ To elaborate, there are fewer opportunities for coding bias with quantitative data than qualitative data.

Professions have the power to influence member behavior because they confer expertise, provide networks for information-sharing and support, and self-regulate (discipline) member behavior. In contrast, individuals who are not members of the professional groups do not have access to the same benefits, nor are they subject to the same limitations. As noted in Chapter 2, formal discipline is nonexistent in the public health professional community. However, bureaucrat-professionals appear to be guided by their long-term commitment to public health policies and problems: they are responsive to concerns that current actions may bring about future consequences. And, as demonstrated in Chapter 4, agencies with a greater share of health professionals are more reluctant to make rules under divided government conditions.

Professionals take a long view of public health and are therefore concerned for the reputation of the profession. They are also keen to maintain (or enhance) the policy authority they possess. While some may argue that any bureaucrat is motivated by a policy benefit (Gailmard and Patty, 2012), bureaucrat-professionals have invested considerable time and financial resources into acquiring their expertise. Thus, it will be more difficult to move to another policy arena because substantive expertise is less transferrable than, say, general project management expertise. In this way, limitations placed on statutory authority are more keenly felt because the bureaucrat cannot simply move to another agency. Professionals will weigh the benefit of proposing a rule against the future likelihood of other proposing rules. When policy preferences are uncertain, as is the case under divided government, and proposing a rule represents a greater risk to future rulemaking abilities, bureaucrat-professionals will be less willing to propose rules.

I also examined a second type of entity that can provide cues to bureaucrat-professionals, which I refer to as a “centralizing institution.” This institution can provide programmatic

guidance and political feedback; it can also impose sanctions for noncompliance. In this dissertation, the board of health played this role at the state level, while the state health department of health performed this function at the local level. In Chapter 4, I did not find support for my hypothesis that the presence of a board of health decreases rulemaking when divided government is present and the share of health professionals is high. In Section V, I describe factors that may have contributed to my lack of findings. In Chapter 6, I discussed the role of a centralizing institution in informing how LHDs use their discretion. MDHHS provided materials and training, in addition to feedback about aspects of the immunization waiver education program that were being met with opposition.³¹⁵ Yet, we must also consider the potential reinforcing effect of bureaucrat-professionalism within MDHSS on LHD behavior. At MDHHS, there are staff that fit the description of bureaucrat-professionals: they have considerable substantive expertise, and may rely on information and support from colleagues in their profession. It is therefore reasonable to assume that the same considerations that guide rulemaking behavior will also guide the implementation of the rule. In Michigan's case, this entailed planning, executing, and evaluating the waiver education program. When LHDs took actions that had the potential to incite opposition to the rule, such as pressuring religious waiver clients, the state guided LHDs away from these actions. By taking the long view of public health policy implementation, MDHSS will consider political threats not just at the rule proposal stage, but also further into the implementation stage.

This study of local-level implementation suggests the effects of a second aspect of professional self-regulation: professional culture. Rather than being motivated by fears about reputation and how a damaged reputation affects regulatory authority, professionals involved in

³¹⁵ Unfortunately, there are no other mandatory immunization waiver education programs that are administered at the local level. However, future research may be able to contrast the effects of state oversight when a program is mandatory vs. when it is optional.

program implementation may make assessments based on professional culture.³¹⁶ That is, LHD employees are utilizing scarce resources to accommodate the needs of vaccine-hesitant parents. However, as LHD interviewees indicated, these professionals may instead focus on the larger public health impact of the program (i.e., increased vaccination rate and protecting more children from infectious disease). This view was reinforced by the state, which urged respectful treatment of parents and advised LHDs to make sessions accessible to parents. While there may be political reasons for this treatment of parents, political threats were not top-of-mind for most interviewees. Additionally, the executive and legislative branches are controlled by the same party, which likely contributes to a less contentious environment in which to implement state programs. Thus, the role of public health culture emerged as a more prominent theme than politics.

III. Contributions

This dissertation adds to the literature that has shown the effect of professional affiliation on bureaucratic behavior (e.g., Kaufman, 1960; Eisner and Meier, 1990; Balla, 2001). Prior work focused on the idea that professionalism and expertise served to benefit, rather than limit, professionals' behavior (e.g., Wilson, 1980). Further, scholars described federal-level bureaucrat-professionals as benefiting from their reputations as experts, rather than the difficulties professionals may have at the state level (e.g., Bawn, 1995; Carpenter, 2010). It also considered professionalism as possessing managerial elements such as efficiency and effectiveness (e.g., Moe, 1985b). Below, I describe how this dissertation addressed each of these issues with the current literature.

³¹⁶ Recall that Wilson defines culture as "...a persistent, patterned way of thinking about the central tasks of and human relationships within an organization" (1989, p. 91).

My results suggest that bureaucrat-professionals consider the limits, as well as the benefits, of their professional identity. Bureaucrat-professionals do not push forward with rules under all conditions. As Chapter 4 showed, bureaucrat-professionals are reluctant to make rules under divided government. It is likely that bureaucrat-professionals consider longer-term goals when implementing rules rather than pushing forward with a public health agenda that could be met with hostility. As Chapter 5 showed, the bureaucrat-professionals within the LHDs acted in ways that protect public health regulations by accommodating, rather than antagonizing, clients. And, when they deviated from this path, they received guidance from MDHHS that they need to adjust their delivery. Additionally, it does not appear as though sub-federal-level bureaucrats enjoy (or enjoyed) the same reputational benefits as their federal-level peers.³¹⁷ Thus, state- (and local-) level bureaucrat-professionals cannot use their reputation as political cover to push forward with regulation and certain program approaches under all circumstances.

When working within their professional and political limits, bureaucrat-professionals behave strategically. As described in Chapter 5, MDHHS promulgated a rule that removed enforcement of immunization waivers from schools, which were concerned with, and evaluated based on, school attendance. MDHHS then gave the responsibility of handing out waivers to the LHDs which, in contrast to the schools, are concerned with, and evaluated based on, the immunization waiver rate. Additionally, MDHHS put into place a program by which parents received the waiver that provided education and a chance for parents to ask questions about vaccination to a health care professional. While providing education, the creation of this program was also strategic because it made obtaining a waiver much less convenient. Convenience waivers came up time and again in my interviews with LHDs, and the decline in convenience

³¹⁷ There is discussion in the media that, under the current president, expertise should be called into question. See for example, Yong, Ed. "How Trump Could Wage a War on Scientific Expertise: The mechanics of stripping empiricism out of America's regulatory systems." *The Atlantic*. Dec. 2, 2016.

waivers was seen as the key reason why the waiver rule had such an effect on waiver rates in the state.

However, bureaucrat-professionals are not the sole authors of their strategy. Depending on the context, they can also be guided by centralizing institutions that can provide political and programmatic feedback. While I did not find support for centralizing institutions in rulemaking, this type of institution played a noteworthy role in LHD implementation of the state rule in Chapter 5 by providing direction to LHDs as they exercised their direction. Yet, as I describe above, discretion with direction also indicates another way that bureaucrat-professionalism can influence bureaucratic behavior. State governments are also endowed with bureaucrat-professionals who are concerned with the reputation of public health, and their future ability to make rules that improve the health of residents in their state. In addition to reputation, professional culture may also play a role in influencing bureaucrat-professionals' behavior. As the waiver education sessions detailed in Chapters 5 and 6 do not end in parents choosing to vaccinate their children, LHDs are using their resources to make waiver appointments as convenient as vaccination appointments and thus deterring parents who sign waivers for reasons of convenience rather than belief. Bureaucrat-professionals at the local level commit to providing accessible education to vaccine-hesitant parents in order to meet their long-term goal of protecting the public's health.

IV. Generalizability of Findings

This dissertation examines bureaucrat behavior within a specific realm of public health policy. Thus, some may be tempted to extrapolate these findings to other policy arenas such as trade or transportation policy. However, as Carpenter cautions, cross-policy comparisons with

health and other policy arenas may not be appropriate (2014). As relevant to this dissertation, Carpenter notes that bureaucrats are empowered to regulate health services based on their professional expertise: few policy arenas have such regulatory authority. To add nuance to Carpenter's assertions, this dissertation has demonstrated that professionals do not push forward with implementation actions such as regulation regardless of political conditions. Rather, they likely consider the long-term consequences of these actions to their regulatory authority and to public health in general. Thus, studies that examine how the professionalism of bureaucrats affects policy will first need to ascertain the extent to which these professionals are granted discretion, and by extension, autonomy, to carry out policy.³¹⁸

The idea that these results only apply to health policy implementation may be seen as a detriment. However, I would dispute the view that limiting the finding's applications to public health makes them less important. As reported by the Centers for Medicare & Medicaid Services (CMS), U.S. health care spending accounted for almost 18% of our gross national product and amounted to just under \$10,000 per person in 2015.³¹⁹ Although the Supreme Court rejected the notion that all individuals eventually need health care as legal justification in *National Federation of Independent Business v. Sebelius* (Jost, 2012), the fact of the matter is many Americans access health care. According to CDC statistics, 130.4 million emergency room visits in 2013, and 12.2 million of those resulted in a hospital admission.³²⁰ Additionally, the CDC reports 922.6 million physician office visits and estimates that 92.4% of U.S. children visited a

³¹⁸ Another key difference between health and other policy is that illness affects individuals in a way that crosses racial, ethnic, and socio-economic boundaries (Carpenter, 2014). Thus, movements may arise that bring together individuals from across these boundaries. It may also be plausible that groups critical of medicine arise across such cleavages, although some research has shown this to be less likely in the vaccine arena (Yang *et al.*, 2016; Smith, Chu, and Barker, 2004; but see Wang *et al.*, 2014).

³¹⁹ CMS. National Health Expenditure Data: Historical. <https://www.cms.gov/research-statistics-data-and-systems/statistics-trends-and-reports/nationalhealthexpenddata/nationalhealthaccountshistorical.html> (Accessed 3/2/17).

³²⁰ CDC. Emergency Department Statistics <https://www.cdc.gov/nchs/fastats/emergency-department.htm> (Accessed 3/2/17).

physician in 2014.³²¹ As relevant to this dissertation, there were 32,971 reported pertussis cases in 2014, or about 10 per 100,000 population.^{322, 323} Based on these facts, regulations that affect cost, quality, and access to care, as well as the underlying conditions prevent disease, impact many lives. Thus, health policy is important in its own right and findings that elucidate the conditions under which health policies are implemented should not be condemned as unimportant for applying to only one policy area.

V. Implications of Findings

Immunization rules have consequences for vaccine outcomes. Returning to the opening example of Missouri and Kansas, the fact that Missouri had a Hepatitis B mandate earlier suggests that this state would have a significantly greater percentage of adolescents immunized against the disease than Kansas. Unsurprisingly, a study comparing ninth grade immunization rates in Kansas City, MO and Kansas City, KS found that Hepatitis B vaccination was higher in Missouri (Wilson *et al.*, 2005).³²⁴ Thus, the delay in Kansas's rulemaking likely leaves more of its residents vulnerable to Hepatitis B infection.

Yet, immunization rules, and the bureaucrats that write them, are also subject to politics. As professionals in the medical and public health community, they are aware of the benefits of vaccination and the risks of not vaccinating. They are also aware that the major professional

³²¹ CDC. Ambulatory Care Use and Physician office visits. <https://www.cdc.gov/nchs/fastats/physician-visits.htm> (Accessed 3/2/17)

³²² CDC. Pertussis Cases by Year (1922-2015) <https://www.cdc.gov/pertussis/surv-reporting/cases-by-year.html> (Accessed 3/2/17)

³²³ CDC. 2014 Final Pertussis Surveillance Report. <https://www.cdc.gov/pertussis/downloads/pertuss-surv-report-2014.pdf> (Accessed 3/2/17).

³²⁴ The study's authors caution that their sample size was limited to just 11 participating schools. In particular, rural schools were much less likely to participate. Further, the study was conducted using school records, which the authors note may have been incomplete at the time of data collection. Finally, while the mandate may have had an important effect, the study also describes additional programs and policies, such as school vaccine clinics and vaccine funding through the Vaccines for Children program, that occurred in Missouri but not Kansas.

associations, such as the American Academy of Pediatrics, strongly support childhood vaccination. At the same time, there are policy tools to address childhood vaccination that range from permissive to coercive. Specifically, exemption policies permit parents to opt out of vaccination due to medical, religious, and/or philosophical reasons. Some states may put additional conditions on the exemption, such as an educational class (i.e., Michigan), an online module (i.e., Oregon), or a conversation with a health care provider (e.g., Washington). Additionally, more coercive methods exist. For example, some states tie welfare payments to child vaccination status, where families in California and Florida are at risk of losing payments if their child is not up-to-date. Other states may see the courts as a lever, where vaccine refusal may be evidence of child neglect. While Michigan does not permit cases based on vaccine refusal, children in West Virginia and New York were deemed neglected based on the child's vaccination circumstances (Parasidis and Opel, 2017). It is noteworthy that coercive tools appear to be used less readily by public health agencies, as welfare payments are generally administered by human services agencies (or human services divisions within combined health and human services departments). Even though bureaucrat-professionals are committed to vaccination, they do not appear to favor what would be unpopular, but likely effective, policies.³²⁵

VI. Promising Areas for Future Research

Below, I describe promising areas for future research that build on my findings from the dissertation and address unanswered questions.

First, this dissertation focuses on one particular area of health policy. Thus, I would like to test my hypotheses in other areas beyond childhood immunization policy. Childhood

³²⁵ A strict “No Jab, No Pay” policy went into effect in Australia in 2015. Within the first 6 months of the law, almost 200,000 un- or under-vaccinated children were caught up on their vaccinations (Yang and Studdert, 2017). To put this number in context, this amounts to 4% of children in the country.

immunization represents only one aspect of health policy, communicable disease prevention, which has remained highly salient for over a decade. It is therefore important to examine additional aspects of public health of varying salience, such as laws related to safety promotion (e.g., seatbelt and helmet laws) and chronic disease prevention (e.g., smoking bans and cigarette advertising bans). I suspect that, when the policy area is politically salient, we will observe similar effects in terms of the relationship between professionalism and divided government because health professionals will likely be making similar regulatory decisions based on their expertise, information and support networks, and self-regulatory (reputational) concerns. If the issue is not salient, political context will likely matter less than other concerns, such as need.

Second, while I did not find support for the effect of centralizing institutions in Chapter 4, it may be due to the limitations of my data. My analysis indicated that the dynamic relationship between divided government, health professionals, and the presence of a board of health was not significant. Yet, it may be the case that reducing boards of health to a dichotomous measure was too coarse to understand how such boards affect rulemaking behavior. Further, only three states instituted boards of health within my dataset, meaning that any statistical results would be driven by the changes in these three states. Additionally, as noted in Chapter 4, I do not consider other institutions that may need to be consulted in order for rulemaking to take place, namely a state board of education whose members may have been appointed or elected. For example, Missouri's board of education is comprised of eight gubernatorial appointees, while Kansas consists of 10 elected members. My analysis does not address the effects of boards of education on school-related public health rulemaking. This may be a fruitful area for future research, particularly given the many regulations that govern health within schools. In addition to immunization policy, schools are partners in screening for issues

such as vision or hearing difficulties, preparing for health emergencies by having injectable epinephrine or AEDs on-hand, and providing services for children with disabilities, to name a few.

Third, in addition to public health expertise, bureaucrats may benefit from legal expertise in their rulemaking process. While conducting my interviews for Chapter 2, several interviewees close to the rulemaking process in their state commented on the structure of legal advice in their state. That is, those making public health rules often seek legal advice from an in-house attorney within their health department, a lawyer within the Attorney General's office, or a hybrid between these two arrangements. The arrangement of legal advice differs from state to state, as well as within states from year to year. And, as Chapters 2 and 3 describe, the availability of health professionals as subject-matter experts also varies across states and over time. As characteristics internal to the executive branch affect rulemaking, it would be interesting to examine how institutional distance between legal and subject-matter experts affects the proposal and adoption of rules.

Fourth, Chapter 5 examines the implementation of one rule that aims to improve immunization rates in one state. However, its conclusions could be strengthened through a comparison with another state. As noted above, there are no other waiver programs quite like Michigan's that provide discretion to local-level entities. Yet, other states use different methods to address their immunization rates. California, for example, requires that families receiving cash assistance keep their children's immunizations up to date.³²⁶ County-level staff are responsible

³²⁶ Based on 2011 data, California is one of 25 states that has immunizations as a condition of welfare cash payments: Kassabian, David, Whitesell, Anne, and Huber, Erika. Welfare Rules Databook: State TANF Policies as of July 2011. The Urban Institute <http://www.urban.org/sites/default/files/publication/25751/412641-Welfare-Rules-Databook-State-TANF-Policies-as-of-July--.PDF> (Accessed 3/7/17)

for receiving this paperwork or deciding if an extension should be granted.³²⁷ This may be a potential comparison case, as it involves different professionals. Yet, this California requirement also targets a population based on income, whereas a different, and likely wealthier, segment of the population is affected by the Michigan waiver policy. Of note, Michigan has a similar welfare requirement, although MDHHS oversees the program.

Public health agencies play a crucial role in disease prevention and health promotion at the state and local level. As Wilson notes, such agencies are not monolithic actors (1989). Therefore, to understand health agency policy implementation, we must look to the individual bureaucrats within these agencies. This dissertation focuses on the professional identities of bureaucrats within health agencies and examines how these professionals make and implement rules. In particular, it explores how bureaucrat-professionals respond to political challenges and state-level direction, and the effects of professionals' responses on the rules that are proposed and the programs that are implemented. Bureaucrat-professionals in health agencies are far from lazy shirkers or over-zealous workers. Rather, their chosen strategies incorporate a long-term view of population health that influences present policy implementation decisions.

³²⁷ California Welfare and Institutions Code Section 11265.8: <http://codes.findlaw.com/ca/welfare-and-institutions-code/wic-sect-11265-8.html>

APPENDICES

APPENDIX A. CHAPTER 2 APPENDICES

Table A-1. Interviewees by State and Position:

| | CA | CO | MI | MS | NC | NJ | NM | VT | WI | TOTAL |
|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Executive Official, Executive Staff, or Government Official | 1 | 3 | 2 | 1 | | 3 | 2 | 1 | 2 | 15 |
| Program Director | | 2 | | | 1 | | 1 | | | 4 |
| Program/Research Manager | 3 | 2 | 1 | | | | | 1 | | 7 |
| Program Coordinator | | | | | | 1 | | | 1 | 2 |
| Public Health Attorney | | | 1 | | | | 1 | | | 2 |
| TOTAL | 4 | 7 | 4 | 1 | 1 | 4 | 4 | 2 | 3 | 30 |

I was able to obtain interviewees from 9 of 10 selected states.

Table A-2. Professional Association Affiliates by State and Position:

| | National | CA | CO | MI | MS | NJ | WI | TOTAL |
|--|----------|----------|----------|----------|----------|----------|----------|-----------|
| Public Health Leader | 1 | 1 | | | | 1 | 1 | 4 |
| PH Board Member | | | 1 | 1 | | | | 2 |
| Association Staff Member | | | | | | | | |
| Association Committee Chair | | | | | | | 1 | 1 |
| Health Policy Advocate | | | | | | 1 | | 1 |
| Someone who works in health policy | | | | | 1 | | | |
| TOTAL | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 10 |

APPENDIX B. CHAPTER 3 APPENDICES

Figure B-1. Effects of Divided Government as Legislative Professionalism Increases

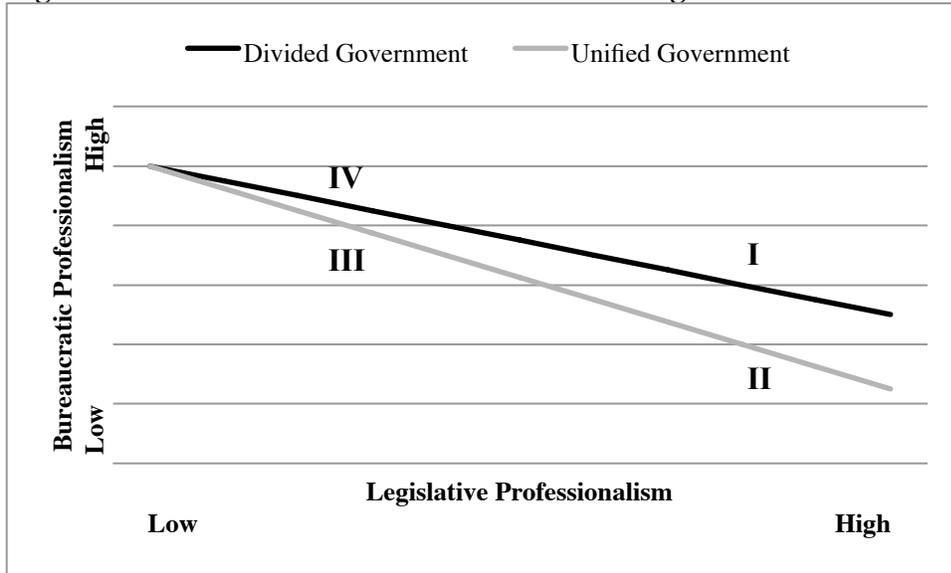


Figure B-2. Effects of Appointment Power as Legislative Professionalism Increases

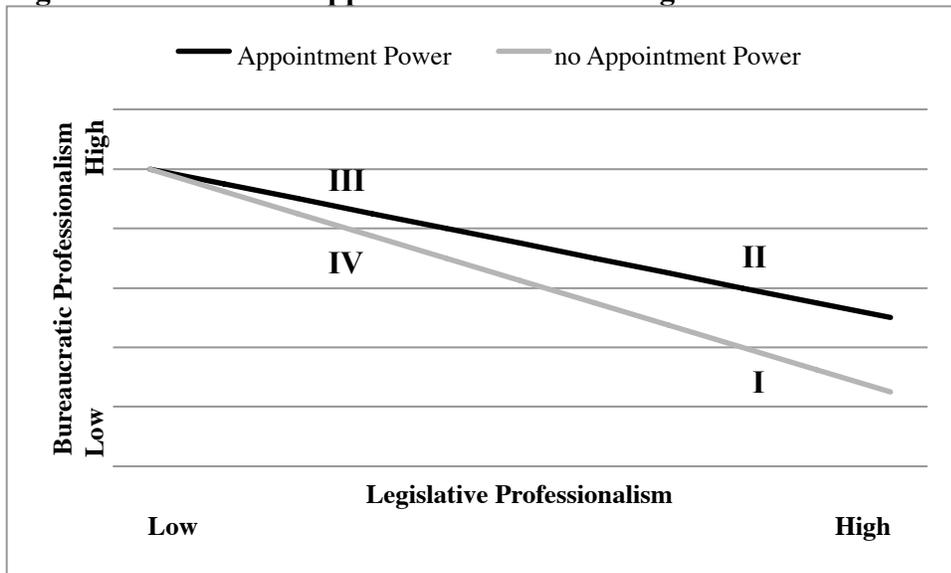


Figure B-3. Distribution of Health Agency Head Salary, 1990 to 2015

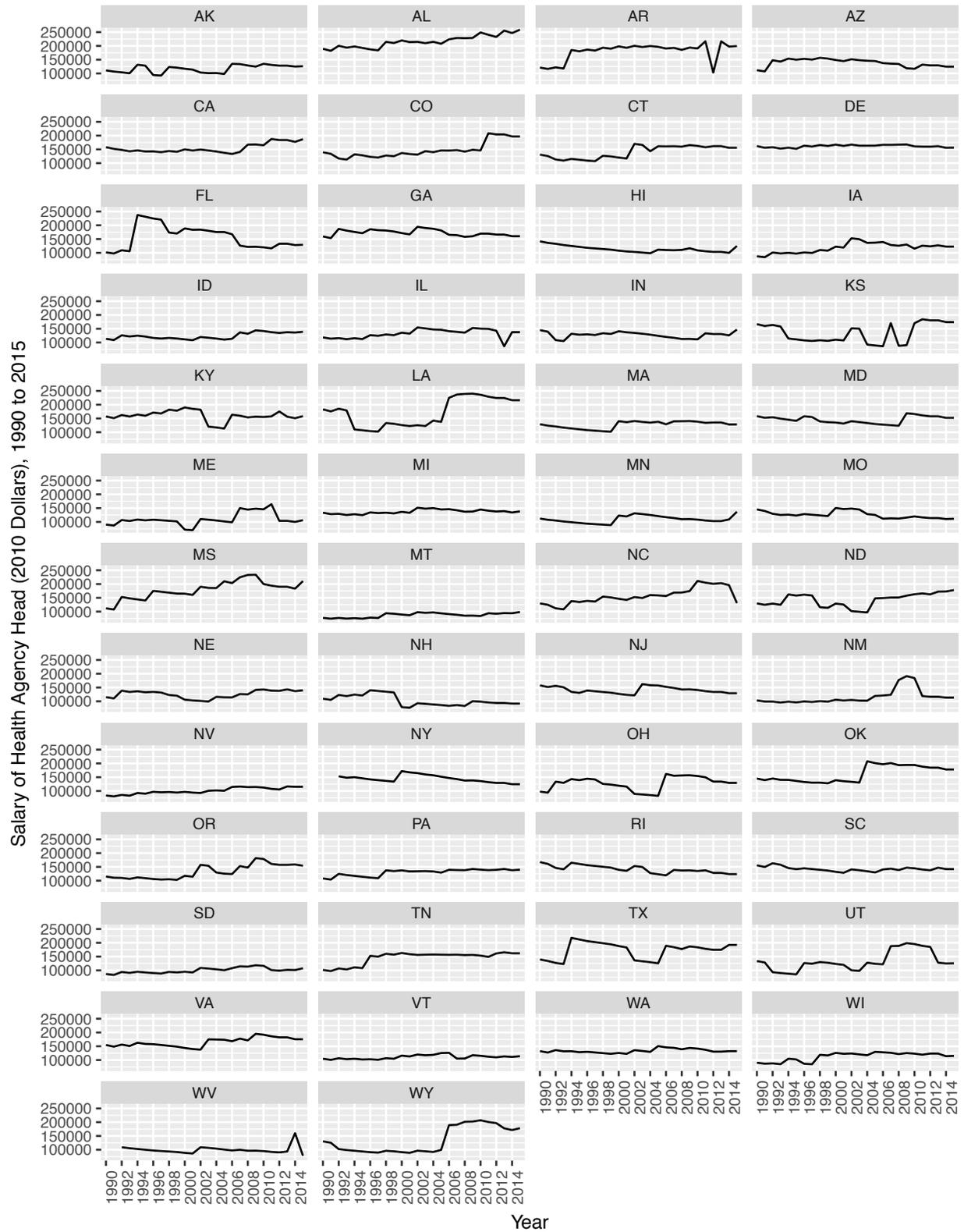


Figure B-4. Distribution of Share of Health Professionals In State Government, 1990 to 2013

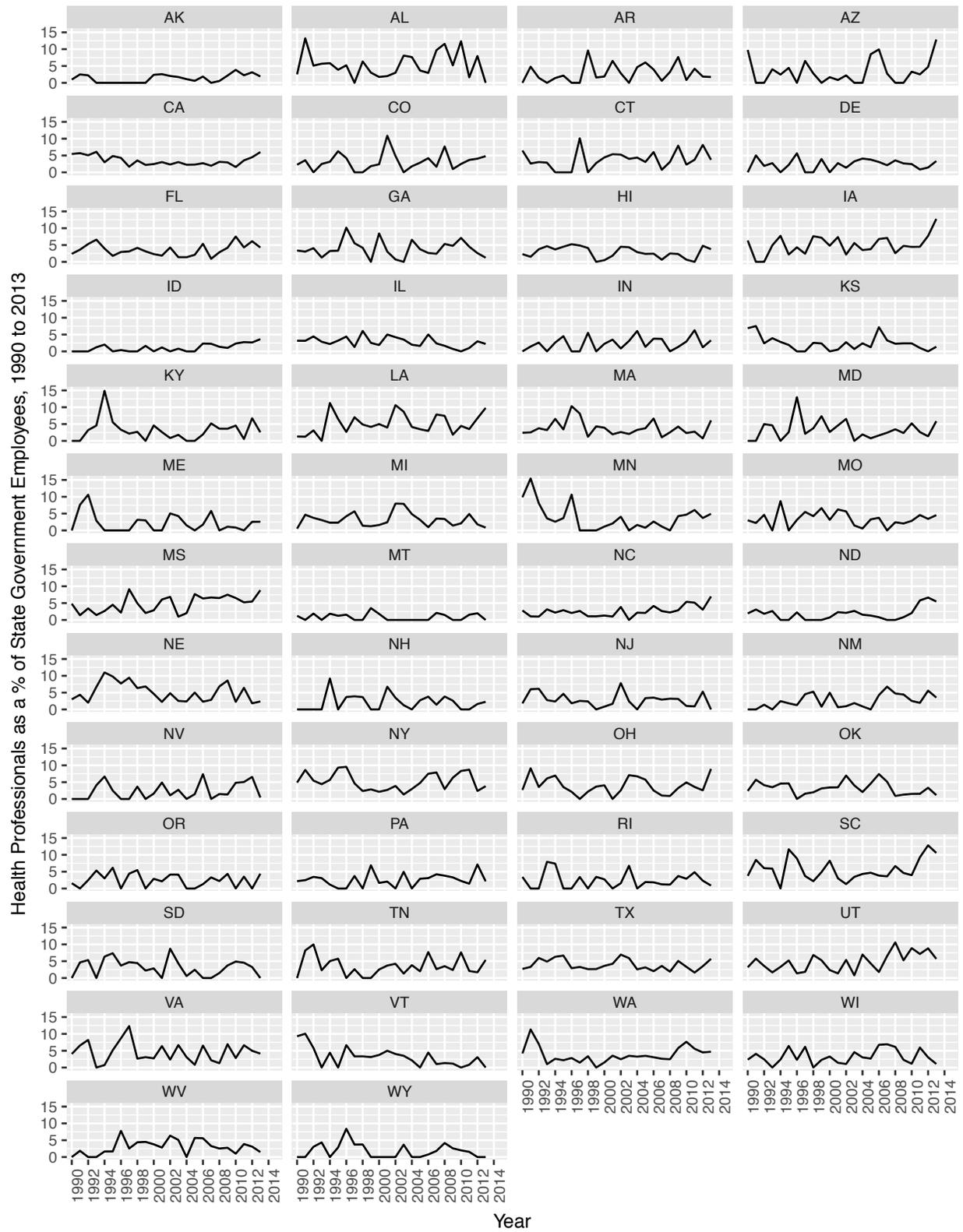


Table B-1. Descriptive Statistics of Independent and Control Variables, 1993-2012

| Variable | Obs. | Mean | Std. Dev. | Min | Max | Source |
|--|-------------|-------------|----------------------|------------|------------|---------------------|
| <i>Dependent Variables</i> | | | | | | |
| Share of Health Professionals | 1,000 | 3.20 | 2.52 | 0 | 14.9 | IPUMS ^a |
| Agency Head Salary | 980 | 137,425 | 33,394 | 69,945 | 248,908 | BOS ^b |
| <i>Independent Variables</i> | | | | | | |
| Appointment Powers | 1,000 | 0.67 | 0.47 | 0 | 1 | BOS ^b |
| Legislative Salary ^c | 994 | 3.57 | 2.64 | 0.01 | 15.82 | Boushey and McGrath |
| Divided Government ^d | 980 | 0.32 | 0.47 | 0 | 1 | BOS ^b |
| <i>Political Conditions Controls</i> | | | | | | |
| Legislative Ideology | 789 | 0.03 | 0.54 | -1.43 | 1.11 | Shor & McCarty |
| Republican Governor | 999 | 0.09 | 0.99 | -1 | 1 | BOS ^b |
| Year Governor Admin. | 1,000 | 4.19 | 2.63 | 1 | 16 | BOS ^b |
| Department Consolidation | 1,000 | 0.00 | 0.25 | -1 | 1 | Lantz <i>et al.</i> |
| <i>Additional Controls</i> | | | | | | |
| Health Budget Per 100,000 ^e | 1,000 | 20.9 | 11.2 | 4.71 | 65.44 | US Census |
| Staff per 10,000 | 1,000 | 8.87 | 6.03 | 1.09 | 44.6 | US Census |
| Federal Medicaid Expense Per Capita ^f | 997 | 1.40 | 4.19 | 0 | 38.6 | NASBO |
| Percent 65 and Older | 1,000 | 13.4 | 2.05 | 4.81 | 19.8 | US Census |
| Percent Below Federal Poverty Level | 1,000 | 12.5 | 3.47 | 4.5 | 26.4 | US Census |

^a Integrated Public Use Microdata Series (IPUMS) (2010)

^b *Book of the States* from the Council of State Governments.

^c Legislative Salary in \$10,000 of Dollars (2010 Dollars)

^d Divided Government is missing for the state of Nebraska, which has a nonpartisan legislature.

^e Health Budget Per 100,000 is in \$1,000 of Dollars (2010 Dollars)

^f Federal Medicaid Expense Per Capita in \$100,000 of Dollars (2010 Dollars)

Table B-2. Descriptive Statistics of Independent and Control Variables, 2010 and 2012

| Variable | Obs. | Mean | Std. Dev. | Min | Max | Source |
|--|-------------|-------------|----------------------|------------|------------|---------------------|
| <i>Dependent Variables</i> | | | | | | |
| Percent Non-Clerical Employees | 84 | 79.2 | 9.92 | 47.6 | 99 | ASTHO ^a |
| Percent Public Health Professionals | 86 | 46.2 | 17.1 | 6 | 85.9 | ASTHO ^a |
| <i>Independent Variables</i> | | | | | | |
| Appointment Powers | 100 | 0.71 | 0.46 | 0 | 1 | BOS ^b |
| Legislative Salary ^c | 100 | 3.55 | 2.59 | 0.01 | 12.3 | Boushey and McGrath |
| Divided Government ^d | 98 | 0.27 | 0.44 | 0 | 1 | BOS ^b |
| <i>Political Conditions Controls</i> | | | | | | |
| Legislative Ideology | 68 | 0.02 | 0.67 | -1.42 | 1.11 | Shor & McCarty |
| Republican Governor | 100 | 0.07 | 1.00 | -1 | 1 | BOS ^a |
| Year Governor Admin. | 100 | 4.48 | 2.69 | 1 | 12 | BOS ^a |
| Department Consolidation | 100 | -0.03 | 0.17 | -1 | 0 | Lantz <i>et al.</i> |
| <i>Additional Controls</i> | | | | | | |
| Health Budget Per 100,000 ^e | 100 | 19.9 | 10.5 | 6.76 | 50.7 | US Census |
| Staff per 10,000 | 100 | 7.77 | 4.68 | 1.39 | 23.1 | US Census |
| Federal Medicaid Expense Per Capita ^f | 100 | 1.71 | 5.08 | 0 | 38.6 | NASBO |
| Percent 65 and Older | 100 | 13.7 | 1.70 | 7.8 | 18.2 | US Census |
| Percent Below Federal Poverty Level | 100 | 14.2 | 3.37 | 6.5 | 22.5 | US Census |

^a Association of State and Territorial Health Officials (ASTHO) (2010, 2012a)

^b *Book of the States* from the Council of State Governments.

^c Legislative Salary in \$10,000 of Dollars (2010 Dollars)

^d Divided Government is missing for the state of Nebraska, which has a nonpartisan legislature.

^e Health Budget Per 100,000 is in \$1,000 of Dollars (2010 Dollars)

^f Federal Medicaid Expense Per Capita in \$100,000 of Dollars (2010 Dollars)

Figure B-5. Distribution of Legislator Salary, Agency Head Salary Models (N= 769)

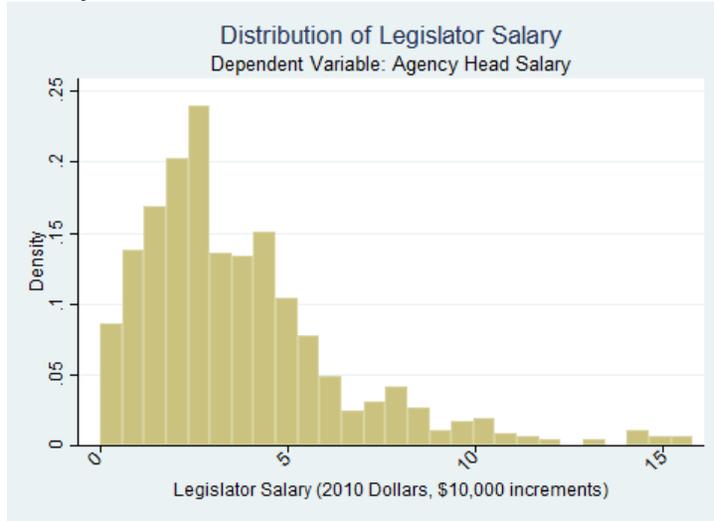


Figure B-6. Distribution of Legislator Salary, Percent Non-Clerical Employees Models (N=58)



Figure B-7. Distribution of Legislator Salary, Public Health Professionals Models (N=60)

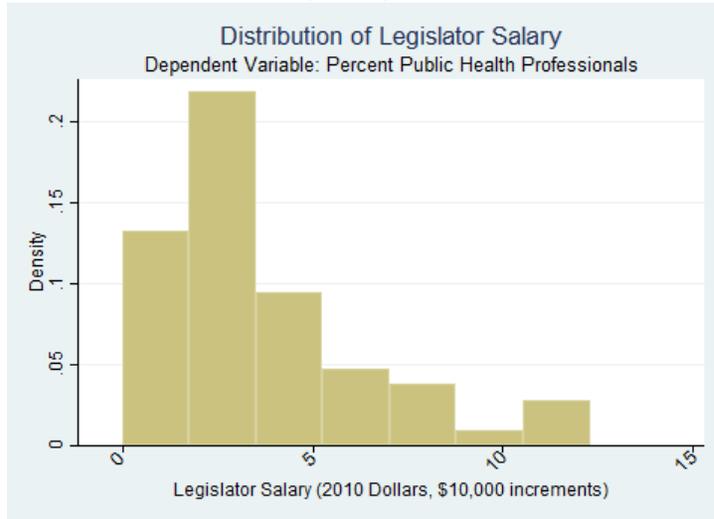


Figure B-8. Results with Unified Government Interaction

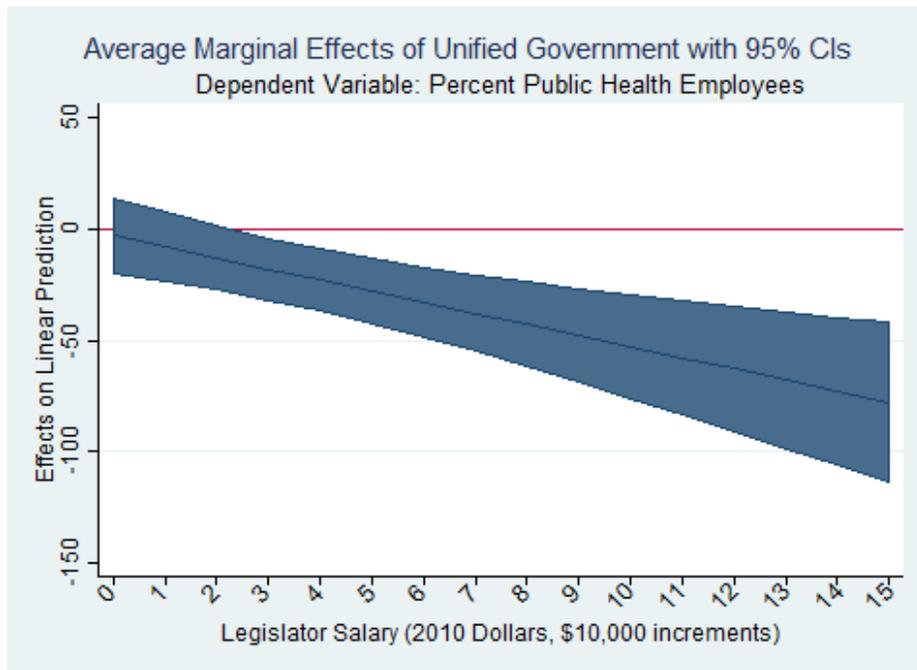
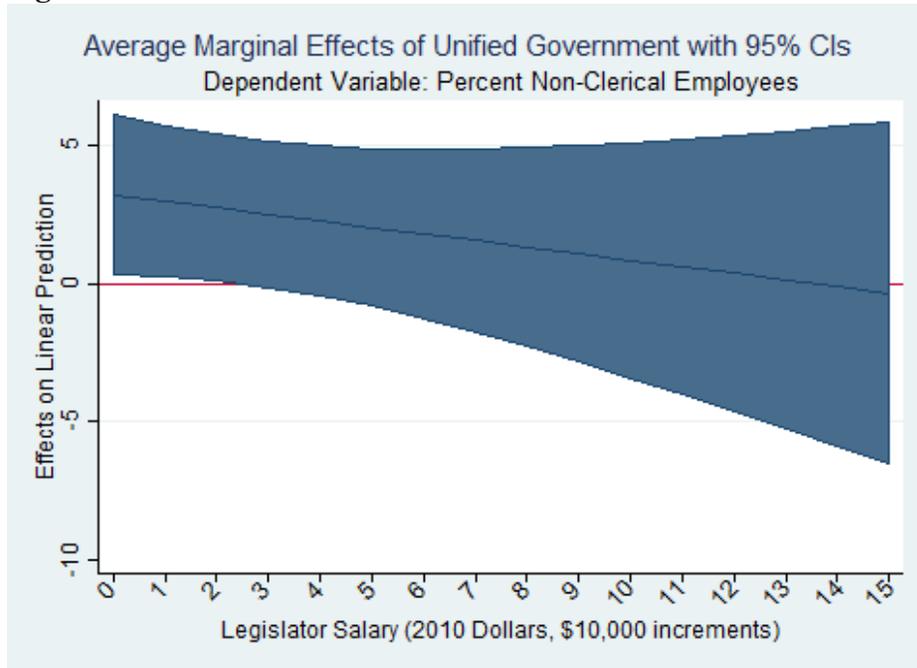


Figure B-9. Results with Regime Interaction

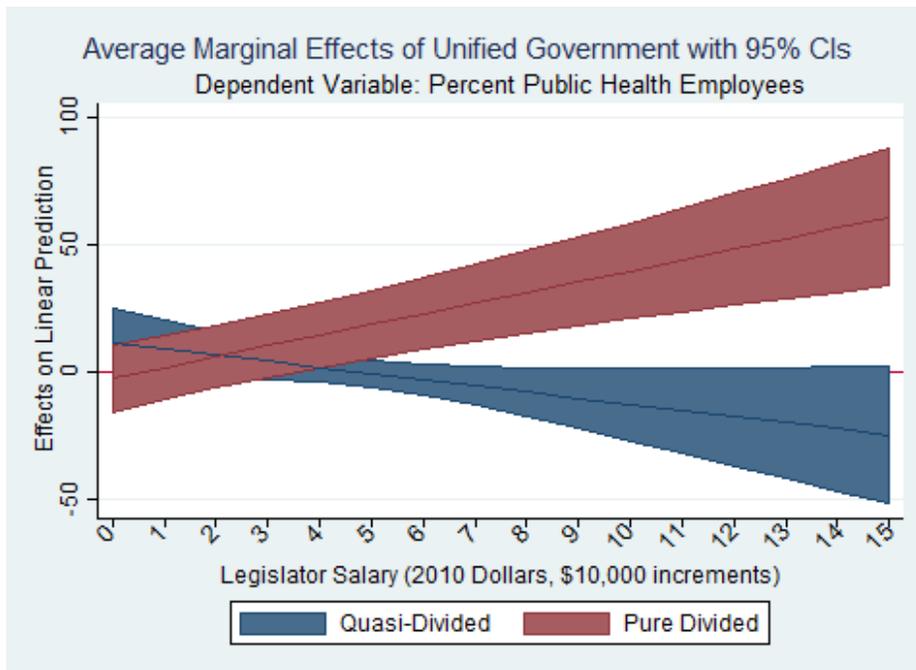
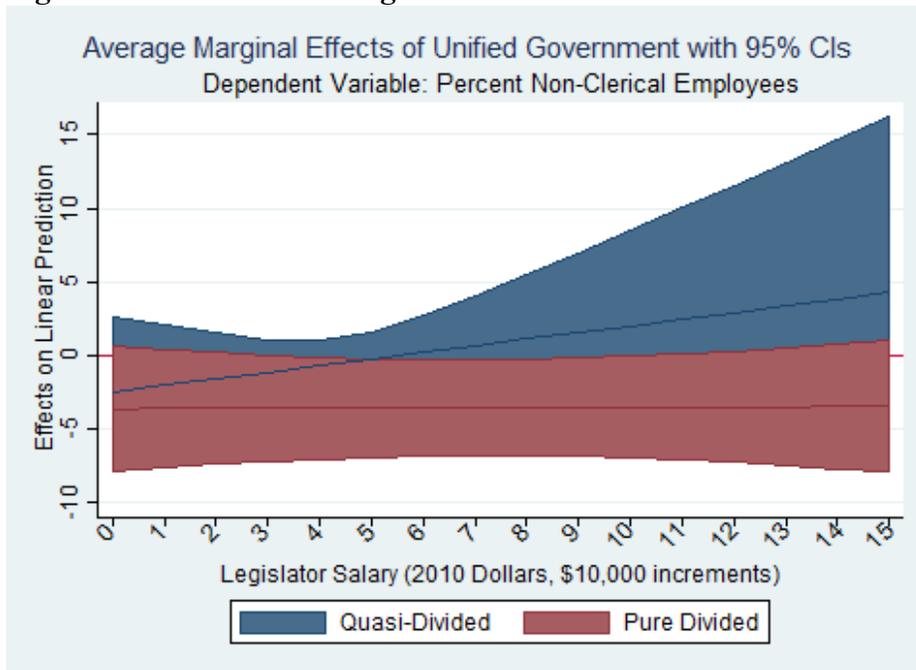
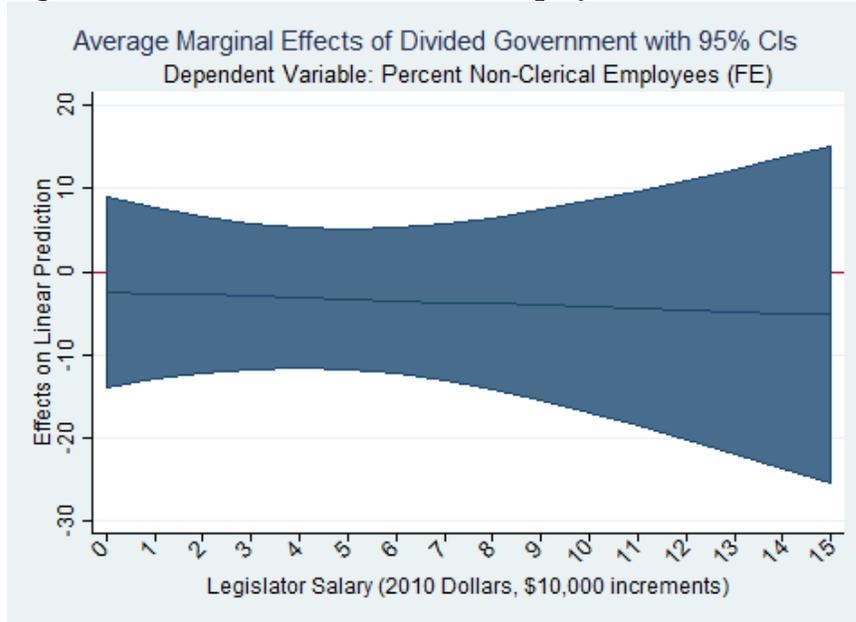


Table B-3. Percent Non-clerical Employees: Comparison of FE vs. RE

| | Percent NCEs [†] (1) | Percent NCEs (1) | Percent NCEs [†] (2) | Percent NCEs (2) | Percent NCEs [†] (3) | Percent NCEs (3) |
|---|----------------------------------|----------------------|----------------------------------|---------------------|----------------------------------|---------------------|
| Legislator Salary (per \$10,000) | -1.19 *** (0.43) | 2.63 (3.37) | -1.21*** (0.43) | 2.40 (3.73) | -1.64 (1.01) | -10.31 (4.74) |
| Appointment Power | 2.71 (3.17) | 84.78 *** (42.18) | 2.74 (3.22) | 88.96 (48.22) | 0.08 (5.84) | 4.18 (38.39) |
| Divided Government | -4.10** (1.64) | -3.24 (3.17) | -4.09** (1.86) | -2.42 (4.70) | -4.81 *** (1.72) | 0.69 (2.48) |
| Legislator Salary x Divided Government | | | 0.03 (0.17) | -0.18 (0.72) | | |
| Legislator Salary x Appointment Power | | | | | 0.79 (1.15) | 19.49 ** (6.29) |
| Legislature Ideology | 3.84** (1.76) | 3.65 (3.61) | 3.69** (1.77) | 3.26 (4.18) | 5.06 *** (1.89) | -2.88 (3.21) |
| Governor Party | 0.09 (0.44) | 0.61 (1.45) | 0.04 (0.53) | 1.02 (2.23) | 0.23 (0.45) | 1.42 (1.01) |
| Year Governor Administration | 0.35 (0.28) | 0.15 (0.56) | 0.34 (0.29) | 0.10 (0.64) | 0.39 (0.27) | -0.73 (0.47) |
| Department Consolidation | -0.34 (4.10) | -8.78 (14.81) | -0.32 (4.18) | -9.34 (16.06) | -0.33 (3.76) | 44.64 * (19.88) |
| Health Budget Per 100,000 | -0.23* (0.14) | -0.28 (0.40) | -0.24* (0.14) | -0.30 (0.44) | -0.18 (0.12) | -0.03 (0.28) |
| Health Staff Per 10,000 | 0.75* (0.39) | -4.25 (3.27) | 0.76* (0.40) | -4.53 (3.68) | 0.68 (0.43) | -2.88 (2.24) |
| Medicaid Expenditures | -0.34** (0.17) | -1.41 (6.72) | -0.34** (0.17) | -1.42 (7.22) | -0.30 * (0.17) | 25.75 ** (9.85) |
| Percent 65 and Older | 0.13 (0.74) | 4.19 (14.00) | 0.10 (0.74) | 5.65 (16.10) | 0.26 (0.80) | 23.53 * (11.26) |
| Percent Below FPL | -1.36*** (0.48) | 0.06 (1.94) | -1.37*** (0.48) | -0.26 (2.43) | -1.29 *** (0.47) | -1.24 (1.36) |
| Constant | 95.69*** (12.72) | 20.22 (201.64) | 96.26*** (12.82) | 5.11 (224.69) | 93.30 *** (14.80) | -184.67 (150.34) |
| N | 58 | 58 | 58 | 58 | 58 | 58 |
| Effects Employed | random | fixed | random | fixed | random | fixed |

Each column is a separate OLS regression. Unit of analysis is state-year. †Robust standard errors are reported in parentheses. **** p<0.001, *** p<0.01, ** p<0.05, * p<0.10

Figure B-10. Percent Non-Clerical Employees, Divided Government (FE)



**Note: Graphed using Stata's noestimcheck command*

APPENDIX C. CHAPTER 4 APPENDICES

Table C-1. Variable Codebook Summary

Dependent Variables

Proposed Rules: Count of rules proposed by state-year. Note: “Notice of rule-making intent,” “Proposed (not published),” and “Temporary” coded as proposed. Data obtained from LexisNexis State Capital. Included rules contained the following policies: exemption expansion, exemption contraction, mandate expansion, mandate contraction, mercury ban expansion, mercury ban contraction, mercury information, ingredient information, and disease risk information.

Adopted Rules: Count of rules adopted by state-year. Note: “Adopted-temporary” coded as adopted. Data obtained from LexisNexis State Capital. Included rules contained the following policies: exemption expansion, exemption contraction, mandate expansion, mandate contraction, mercury ban expansion, mercury ban contraction, mercury information, ingredient information, and disease risk information. Definitions (adapted from Lillvis, Kirkland, and Frick, 2014):

1. *Exemption expansion:* an effort to make it easier to opt out of vaccines by creating a new exemption or broadening an existing one. This includes exemptions from vaccinations via demonstrations of immunity.
 2. *Exemption contraction:* an effort to make it more difficult to opt out of vaccines by either withdrawing or adding more requirements to an existing exemption.
 3. *Mandate expansion:* an addition of a recommended vaccine to a state’s list of mandated childhood vaccines, or the expansion of the public health department’s powers to monitor or add to a state’s mandate policy (excluding influenza mandates).
 4. *Mandate contraction:* a deletion of a mandated vaccine from a state’s list of mandated childhood vaccines, or the restriction or burdening of the public health department’s powers to monitor or add to a state’s mandate policy.
 5. *Mercury ban expansion:* a rule banning mercury or thimerosal from vaccines in that state or for use in a particular population sub-group, or a bill expanding a preexisting mercury ban to a broader population of people (such as children under age 8 instead of children under 3).
 6. *Mercury ban contraction:* an change to an existing mercury ban allowing the use of mercury in some circumstances or populations or for a particular vaccine (such as influenza), often substantially undercutting or functionally overruling the original ban.
 7. *Mercury information:* a rule requiring health care providers to tell parents about mercury in vaccines, with the expectation that this information will promote more refusals of vaccines or will frame
-

- vaccines as dangerous in the conversation with a health care provider.
8. *Ingredient information*: a rule requiring health care providers to give parents a list of vaccine ingredients with the expectation that this information will increase the refusals of vaccines or frame vaccines as dangerous in the conversation with a health care provider.
 9. *Disease risk information* (in the absence of, or as a complement to, a mandate): a rule requiring health care providers to tell patients about the risks of a disease for which there is a vaccine available but that might not be mandated in that state (such as HPV), with the expectation that this information will promote use of the vaccine by framing it as necessary to avoid contracting the disease.

Independent Variables

Share of Health Professionals: Share of health professionals in state government specifically physicians and surgeons, physicians assistants, registered nurses, nurse practitioners and anesthetists, medical scientists, medical managers, and other health diagnosing practitioners. Note: state government does not include legislators. However, it may include justices.

Divided Government: As per Binder (1999), coded as “1” if a single party controlled the legislature and the other party controlled the governorship, “0” otherwise.

Board of Health (i.e., Centralized Rulemaking Process): Coded as “1” if a Board, Council, or other entity has authority to promulgate rules., or the authority to advise and sanction the Department. Coded as “0” if there is no Board of Health, or if there is another entity that fills this role and is not specific to health.

Public Health Configuration: Coded as “1” if public health is its own department, “2” if public health is combined with one other function, “3” if combined with two other functions, and “4” if combined with three other functions (i.e., Medicaid, Mental Health, and Human Services).

Legislative Review: Coded as “0” if the legislature does not review proposed or existing rules, “1” if the legislature reviews proposed rules only, and “2” if the legislature reviews existing rules (includes states that review both proposed and existing rules).

Legislature Passed Law: Coded as “0” if the legislature did not pass any childhood immunization-related legislation that year, and “1” if the legislature did pass a law. Data obtained from Lexis Nexis State Capital. See Lillvis *et al.* (2014) for a full description of methodology.

Political Conditions Controls

Legislative Ideology: Calculated based on the mean of the two-chamber median.

Governor Party: Coded as “1” if the governor is a Republican, “0” if neither Republican nor Democrat, and “-1” if Democrat.

Agency Head Appointed: Coded as “1” if the governor appoints the head of the health agency; coded as “0” if another entity appoints, such as a cabinet

secretary or Board of Health.

Midnight: Coded as “1” if the governor transitions out of his/her role in a given year and “0” otherwise. Exceptions are death in office or immediate resignation due to scandal.

Additional Controls

Budget as % of GSP: Calculated value of the state’s budget, taken from the U.S. Census Bureau, as a percent of the gross state product, taken from the Bureau of Economic Analysis.

Health Budget Per 1,000: Calculated value of health budget spending in 2010 dollars per 1,000 state residents. Raw values for budget and population taken from the U.S. Census.

Staff per 1,000: Health department staff per 1,000 state residents. Raw values for staff and population taken from the U.S. Census.

Pertussis Incidence (last year): I consulted volumes 47, no. 1 through 61, no. 1 of the CDC’s Morbidity and Mortality Weekly Reports (MMWR) to obtain values for 1997 through 2011, which provides cumulative year totals. I used the number of cases reported from the last week of the following year (e.g., for 2005, I used the cumulative case numbers reported for 2005 in the MMWR published in the first week of 2006) to address the reporting lag. To calculate the disease incidence, I then divided by the total state population (per 100,000) as reported by the U.S. Census Bureau.

Legislative Salary: I updated the legislature salary data from Boushey and McGrath (2016) to include years 2011 and 2012; all of this data originally came from the *Book of the States*. These salary values include per diem compensation, which is calculated by multiplying the number of days in session by the state’s per diem rate, both of which are listed in the *Book of the States*. If the upper and lower house met for different durations, I used the longer duration to calculate the per diem rate. Following Boushey and McGrath, any gaps in salary data were filled in using the prior year’s salary information. Values are in thousands of 2010 dollars.

Table C-2. Descriptive Statistics of Dependent, Independent, and Control Variables

| Variable | Obs. | Mean | Std. Dev. | Min | Max | Source |
|--|------|--------|-----------|-------|--------|-----------------------|
| <i>Dependent Variables</i> | | | | | | |
| Proposed Rules | 750 | 0.28 | 0.62 | 0 | 5 | Author |
| Adopted Rules | 750 | 0.25 | 0.57 | 0 | 5 | Author |
| <i>Independent Variables</i> | | | | | | |
| Share of Health Professionals | 750 | 3.13 | 2.33 | 0 | 12.8 | IPUMS ^a |
| Divided Government | 735 | 0.32 | 0.47 | 0 | 1 | BOS ^b |
| Board of Health | 750 | 0.43 | 0.50 | 0 | 1 | Hughes <i>et al.</i> |
| Public Health Configuration | 750 | 2.00 | 1.23 | 1 | 4 | Lantz <i>et al.</i> |
| Legislative Review | 749 | 1.46 | 0.72 | 0 | 2 | BOS ^b |
| Legislature Passed Law | 750 | 0.11 | 0.31 | 0 | 1 | Lillvis <i>et al.</i> |
| <i>Political Conditions Controls</i> | | | | | | |
| Legislative Ideology | 674 | 0.02 | 0.56 | -1.42 | 1.11 | Shor & McCarty |
| Governor Party | 750 | 0.10 | 0.99 | -1 | 1 | BOS ^b |
| Agency Head Appointed | 750 | 0.68 | 0.47 | 0 | 1 | BOS ^b |
| Midnight | 750 | 0.17 | 0.37 | 0 | 1 | BOS ^b |
| <i>Additional Controls</i> | | | | | | |
| Budget as % of GSP | 750 | 0.12 | 0.03 | 0.07 | 0.24 | US Census |
| Health Budget Per 1,000 | 750 | 196.09 | 97.66 | 47.03 | 548.62 | US Census |
| Staff per 1,000 | 750 | 0.81 | 0.52 | 0.11 | 2.62 | US Census |
| Pertussis per 100,000 | 750 | 0.11 | 0.29 | 0 | 4.96 | CDC |
| Legislative Salary (in \$1,000 increments) | 749 | 36.4 | 27.3 | 0.10 | 158.2 | Boushey and McGrath |
| Justices Elected ^c | 750 | 0.76 | 0.43 | 0 | 1 | BOS ^b |

^a Integrated Public Use Microdata Series (IPUMS) data file is part of the Current Population Survey.

^b Book of the States from the Council of State Governments.

^c Included in the models with the triple interaction (model 3 described on p. 27)

Figure C-1. Distribution of Share of Health Professionals

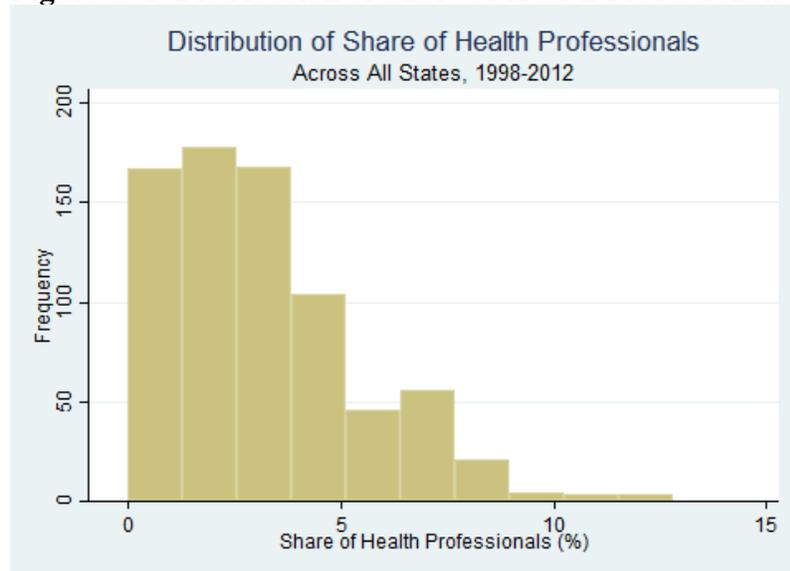


Table C-3: Analysis of state childhood immunization regulation: Proposed Rules (1998 – 2012)

| Variable | Proposed Rules (1) | Proposed Rules (2) | Proposed Rules (3) |
|--|-----------------------|-----------------------|-----------------------|
| <i>Share of Health Professionals</i> | 0.004 (0.039) | 0.066 * (0.037) | 0.104 * (0.061) |
| <i>Divided Government</i> | -0.230 (0.212) | 0.410 (0.280) | 0.324 (0.377) |
| <i>Divided Government x Share Health Profession.</i> | | -0.222 *** (0.080) | -0.154 (0.097) |
| <i>Centralized Rulemaking</i> | | | 0.368 (0.377) |
| <i>Centralized Rulemaking x Share of Health Prof.</i> | | | -0.047 (0.102) |
| <i>Centralized Rulemaking x Divided Government</i> | | | 0.331 (0.612) |
| <i>Centralized Rulemaking x Share of Health Professionals x Divided Government^a</i> | | | -0.120 (0.151) |
| <i>Legislative Review</i> | 0.129 (0.374) | 0.165 (0.364) | 0.163 (0.152) |
| <i>Legislature Passed Law</i> | 0.404 (0.250) | 0.348 (0.251) | 0.231 (0.277) |
| <i>Public Health Configuration^a</i> | | | |
| + 1 other agency | 1.455 * (0.855) | 1.571 * (0.857) | 0.223 (0.273) |
| + 2 other agencies | 1.196 (0.865) | 1.214 (0.876) | -0.277 (0.337) |
| + 3 other agencies | 1.325 * (0.688) | 1.515 ** (0.658) | -0.200 (0.224) |
| <i>Legislative Ideology</i> | -0.512 * (0.306) | -0.540 * (0.317) | -0.568 *** (0.196) |
| <i>Governor Party</i> | 0.070 (0.108) | 0.111 (0.110) | 0.161 * (0.093) |
| <i>Agency Head Appointed</i> | -0.249 (0.409) | -0.260 (0.417) | -0.505 ** (0.206) |
| <i>Budget as % of GSP</i> | 10.593 (14.719) | 10.650 (14.519) | -0.489 (3.636) |
| <i>Health Budget Per 1,000</i> | -0.003 * (0.002) | -0.004 * (0.002) | -0.001 (0.001) |
| <i>Staff Per 1,000</i> | -1.496 ** (0.611) | -1.472 ** (0.622) | -0.027 (0.212) |
| <i>Pertussis Per 100,000</i> | -1.011 * (0.519) | -0.898 * (0.516) | -0.791 (0.503) |
| <i>Midnight</i> | -0.311 (0.242) | -0.317 (0.239) | -0.340 (0.226) |
| <i>Legislative Salary</i> | -0.033 ** | -0.033 ** | -0.001 (0.004) |
| <i>Constant</i> | -0.947 (2.545) | -1.212 (2.515) | -1.758 *** (0.671) |
| <i>N</i> | 673 | 673 | 673 |

The unit of analysis is state-years. The table above displays coefficients estimated by Poisson models; models 1 and 2 employ state and year dummy variables (not shown). Differences in level of significance are highlighted. Robust standard errors are reported in parentheses. Significance is denoted as follows: * p<0.10; a. *Centralized Rulemaking x Divided Government* and *Centralized Rulemaking x Share of Health Professionals* not shown. b. Standalone public health department is the reference category.

Table C-4: Analysis of state childhood immunization regulation: Adopted Rules (1998 – 2012)

| Variable | Adopted Rules (1) | Adopted Rules (2) | Adopted Rules (3) |
|--|-----------------------|-----------------------|-----------------------|
| <i>Share of Health Professionals</i> | -0.031 (0.044) | -0.021 (0.044) | 0.058 (0.077) |
| <i>Divided Government</i> | -0.138 (0.210) | -0.047 (0.304) | 0.090 (0.429) |
| <i>Divided Government x Share Health Profession.</i> | | -0.032 (0.089) | -0.018 (0.109) |
| <i>Centralized Rulemaking</i> | | | 0.723 * (0.378) |
| <i>Centralized Rulemaking x Share of Health Prof.</i> | | | -0.134 (0.108) |
| <i>Centralized Rulemaking x Divided Government</i> | | | -0.225 (0.610) |
| <i>Centralized Rulemaking x Share of Health Professionals x Divided Government</i> | | | -0.073 (0.168) |
| <i>Legislative Review</i> | -0.114 (0.369) | -0.110 (0.368) | 0.199 (0.163) |
| <i>Legislature Passed Law</i> | 0.258 (0.265) | 0.256 (0.264) | 0.439 (0.268) |
| <i>Public Health Configuration^a</i> | | | |
| + 1 other agency | 0.307 (0.882) | 0.317 (0.884) | 0.273 (0.296) |
| + 2 other agencies | 1.147 (0.862) | 1.166 (0.869) | -0.173 (0.340) |
| + 3 other agencies | 0.109 (0.747) | 0.128 (0.762) | -0.295 (0.229) |
| <i>Legislative Ideology</i> | -0.211 (0.320) | -0.214 (0.322) | -0.448 ** (0.192) |
| <i>Governor Party</i> | 0.030 (0.107) | 0.036 (0.110) | 0.116 (0.096) |
| <i>Agency Head Appointed</i> | -0.619 * (0.365) | -0.616 * (0.367) | -0.573 *** (0.205) |
| <i>Budget as % of GSP</i> | 10.932 (14.461) | 10.869 (14.390) | -2.428 (3.874) |
| <i>Health Budget Per 1,000</i> | -0.002 (0.002) | -0.002 (0.002) | -0.001 (0.001) |
| <i>Staff Per 1,000</i> | -2.336 *** (0.617) | -2.333 *** (0.782) | -0.056 (0.217) |
| <i>Pertussis Per 100,000</i> | 0.007 (0.213) | 0.013 (0.232) | -0.032 (0.267) |
| <i>Midnight</i> | -0.317 (0.219) | -0.316 (0.219) | -0.161 (0.217) |

| Variable | Adopted Rules (1) | Adopted Rules (2) | Adopted Rules (3) |
|---------------------------|--------------------------|--------------------------|--------------------------|
| <i>Legislative Salary</i> | -0.006 (0.014) | -0.006 (0.014) | 0.002 (0.004) |
| <i>Constant</i> | -0.421 (2.616) | -0.466 (2.627) | 1.888 (0.719) |
| <i>N</i> | 673 | 673 | 673 |

The unit of analysis is state-years. The table above displays coefficients estimated by Poisson models; models 1 and 2 employ state and year dummy variables (not shown). Differences in level of significance are highlighted. Robust standard errors are reported in parentheses. Significance is denoted as follows: * p<0.10; ** p<0.05; *** p<0.01. a. Standalone public health department is the reference category.

APPENDIX D. CHAPTER 5 APPENDICES

Document D-1 Interview Guide: Local Health Department Staff

**Local Health Department Implementation of
Michigan Immunization Exemption Law**

PI: Denise Lillvis

Faculty Advisor: Peter Jacobson

Interview Guide: Local Health Department Staff

Version Date: August 22, 2016

Respondent ID: _____

Thank you very much for speaking with me today. [*if consented to record: I have just turned the recorder on*]. I am interested in learning about how you implemented the Michigan school waiver law (or exemption law) that took effect in January 2015. I will be asking you questions about what you did initially for 2015, as well as your plans for the 2016-2017 school year.

1. To start, please tell me a little bit about yourself. What is your professional and educational background? What is your current role in the health department, and how long have you served in this role?
2. In a couple of words, what is your role in implementing the exemption law? Is it managerial, financial, human resources, service delivery, other? [*Ask if not answered in #1 above.*] [SCREENING]

PROCESS

I'd like to turn to the process of developing the educational session.

3. Please tell me about the process you used to implement the law. How did you develop the educational session? *Probe:*
 - a. *How did you decide what to talk about?*
 - b. *What training or materials did you provide to the educators?*
 - c. *Where did you get your educational materials?*
 - d. *Did you adapt other materials and processes to fit this law, or did you have to start from scratch?*
4. How much was the state involved in your session planning? Did the state provided written guidance or other policy statements that might indicate how much discretion you were being given to implement the policy?
5. What role did the following individuals play in developing your department's educational session? *Probe: What feedback or guidance did you solicit from:*
 - a. *State officials or state employees (if not addressed above)*
 - b. *Officials or staff within your own health department*

- c. *Officials or staff at another county health department*
 - d. *Professional association members*
 - e. *Schools or school officials*
 - f. *Health care professionals in the community such as physicians or nurses?*
 - g. *Community members*
6. Is childhood vaccination a charged or hot button issue in the area served by your LHD? Why or why not? In what ways did this affect how you approached the sessions? *Probe: What is the role of vaccine-critical groups in your community? In what ways has their presence affected implementation of this rule?*
7. What were your top considerations when designing the education sessions?
- a. *Resources (Staffing/Financing)*
 - b. *Constituent needs*
 - c. *Competing priorities*
 - d. *Other organizational factors or trends*
 - e. *Other external factors or trends*

STRUCTURE/CHARACTERISTICS

Now, I'd like to talk a bit about the educational sessions themselves.

8. It would be helpful for me if you could please describe the education session. *Probe:*
- a. *Is it in-person?*
 - b. *Is it one-on-one or in a group?*
 - c. *Are parents required to bring their children?*
 - d. *Are they held during the day, in the evenings, or on weekends?*
 - e. *Did you see any individuals that lived outside your county at your sessions?*
 - f. *What materials are provided?*
 - g. *Is it primarily a presentation, more of a Q/A, or a discussion with parents?*
 - h. *How long do the sessions take on average?*
 - i. *How many education sessions have you delivered?*
 - j. *When was the first one held?*
9. What funding is available for the sessions, perhaps from the state or county government? Alternately, how much does it cost to implement the policy?
10. How many health department staff members deliver the sessions, and how do you find staff for the education session? How does implementing the law affect your workflow?
11. How do parents find out about the required session? What was the health department's role in raising awareness about the requirement?
12. What are the goals or objectives of the session

13. Who holds you accountable for these goals or objectives? When you think of this policy, who are the stakeholders? [*Potential responses: DHHS, Parents, Lawmakers, the General Public*]
14. Tell me about the parents and guardians who attend the education session. What are the demographics of the attendees? *Probe:*
 - a. *What are the main reasons individuals want to exempt their children?*
 - b. *Political beliefs?*
 - c. *Basis of their vaccine hesitancy?*
 - d. *Demographic characteristics?*
 - e. *Did any of the attendees surprise you?*

OUTCOMES/EVALUATION

I'm now going to ask some questions about the results of the sessions, how you evaluate the sessions, and anticipated changes in the sessions for the 2016-2017 school year.

15. What are the parents' reactions to the sessions? What types of questions to they have? What issues do parents raise, and how did you respond? Did any change their mind and leave without a waiver?
16. How did you evaluate the sessions? How did you document success? *Probe:*
 - a. *Staff member debrief*
 - b. *Attendee survey*
 - c. *Other feedback from parents?*
17. What data about the sessions do you report to the state? What data about the sessions do you collect or report internally?
18. What changes are you making to the education sessions this year, and what are the reasons for the changes? *Probe:*
 - a. *In what ways did implementing the law work well in 2015?*
 - b. *What will you definitely repeat in your sessions this upcoming year?*
 - c. *In what ways did the educational program not work as well?*
 - d. *What will you definitely not repeat in your sessions this upcoming year?*
19. Why do you think the waiver rate in your area increased/decreased/stayed the same? *Probe: does it have to do with:*
 - a. *Characteristics about area that you serve? [If LHD incorporates multiple counties, ask about this]*
 - b. *Characteristics about the people/parents that you serve?*
 - c. *Funding, staffing, or other issues internal to your LHD*
 - d. *Issues coordinating or receiving guidance from the state?*
20. Are you aware of any other programs or efforts that may have affected the exemption rates in your county? *Probe:*
 - a. *Public awareness campaign about the importance of vaccination*

- b. *Increased access to vaccination at the health department*
- c. *Increased enforcement efforts to make sure children were vaccinated or had waivers*

CONCLUDING QUESTIONS/REQUESTS

- 21. Is there anything you would like to add to our conversation today?
- 22. Would you be willing to share any documents related to the education sessions, such as a PowerPoint or other materials you provide to parents?
- 23. [*If not already addressed*] Who else would you recommend that I speak to about implementing this new law?

Table D-1. Michigan Nonmedical Waiver Rates By County, All Grades Combined

Percentages represent the percent of students with nonmedical waivers (i.e., waivers granted for religious or philosophical reasons) out of the total number of students enrolled in school. This table was generated using data from the Michigan Department of Health and Human Services (MDHHS). In the improvement column, positive values indicate that the county's nonmedical waiver rate improved (i.e., declined) from 2014 to 2015. Note that waivers are reported for children who are in kindergarten and seventh grade, as well as new entrants to a school district.

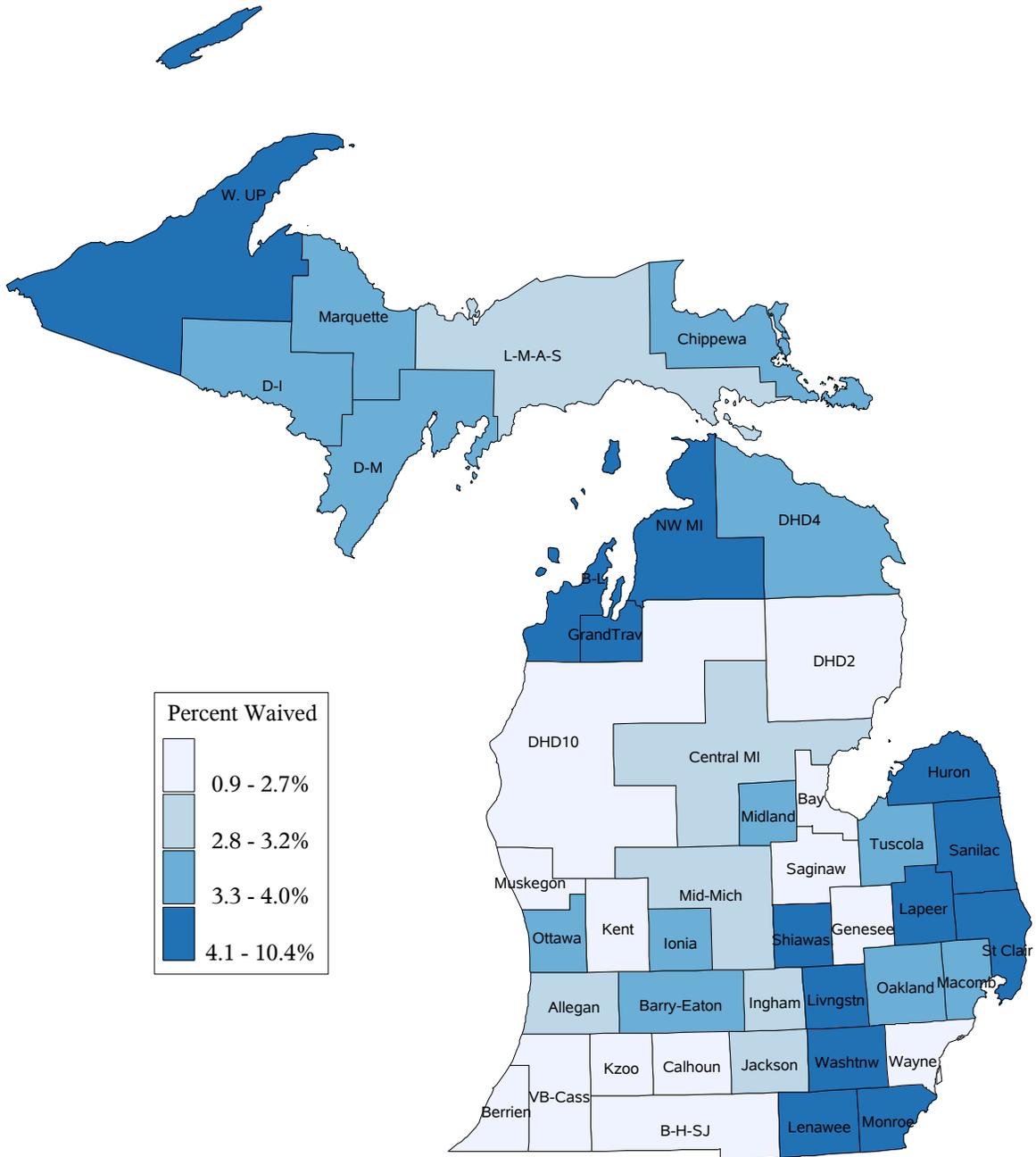
| county | 2014 | county | 2015 | improvement (percentage point) |
|--------------|-------|--------------|-------|-----------------------------------|
| Benzie | 1.3% | Benzie | 3.3% | -2.0% |
| Ontonagon | 1.1% | Ontonagon | 2.9% | -1.8% |
| Alger | 1.2% | Alger | 2.8% | -1.6% |
| Kalkaska | 2.6% | Kalkaska | 3.7% | -1.0% |
| Branch | 1.8% | Branch | 2.7% | -0.9% |
| Baraga | 2.8% | Baraga | 3.7% | -0.9% |
| Huron | 6.3% | Huron | 7.0% | -0.7% |
| Crawford | 2.3% | Crawford | 2.9% | -0.7% |
| Iron | 1.7% | Iron | 2.1% | -0.4% |
| Schoolcraft | 0.6% | Schoolcraft | 1.0% | -0.4% |
| Ottawa | 2.9% | Ottawa | 3.2% | -0.3% |
| Lapeer | 10.0% | Lapeer | 10.3% | -0.3% |
| Alpena | 3.2% | Alpena | 3.4% | -0.2% |
| Jackson | 2.5% | Jackson | 2.8% | -0.2% |
| Muskegon | 1.4% | Muskegon | 1.6% | -0.2% |
| Barry | 2.8% | Barry | 2.9% | -0.2% |
| St. Joseph | 1.8% | St. Joseph | 2.0% | -0.2% |
| Sanilac | 4.3% | Sanilac | 4.3% | -0.1% |
| Menominee | 4.2% | Menominee | 4.2% | 0.0% |
| Keweenaw | 0.0% | Keweenaw | | |
| Montmorency | 5.1% | Montmorency | 5.0% | 0.1% |
| Alcona | 3.0% | Alcona | 2.9% | 0.1% |
| Osceola | 3.0% | Osceola | 2.9% | 0.1% |
| Otsego | 4.2% | Otsego | 4.1% | 0.1% |
| Oscoda | 3.4% | Oscoda | 3.2% | 0.2% |
| Bay | 1.1% | Bay | 0.9% | 0.2% |
| Tuscola | 3.3% | Tuscola | 3.1% | 0.2% |
| Mason | 1.8% | Mason | 1.6% | 0.2% |
| Delta | 3.6% | Delta | 3.4% | 0.3% |
| Allegan | 2.6% | Allegan | 2.3% | 0.3% |
| Kalamazoo | 2.7% | Kalamazoo | 2.2% | 0.4% |
| Van Buren | 2.2% | Van Buren | 1.8% | 0.4% |
| Presque Isle | 4.0% | Presque Isle | 3.5% | 0.6% |
| Eaton | 3.7% | Eaton | 3.1% | 0.6% |
| Lake | 4.4% | Lake | 3.8% | 0.6% |
| Gratiot | 2.1% | Gratiot | 1.4% | 0.7% |
| Isabella | 3.8% | Isabella | 3.2% | 0.7% |

| | | | | |
|--------------|-------|--------------|-------|-------|
| Kent | 2.7% | Kent | 2.0% | 0.7% |
| Cass | 2.5% | Cass | 1.6% | 0.8% |
| Monroe | 4.8% | Monroe | 3.9% | 0.9% |
| Mackinac | 3.4% | Mackinac | 2.6% | 0.9% |
| Calhoun | 2.7% | Calhoun | 1.7% | 0.9% |
| Ingham | 3.8% | Ingham | 2.7% | 1.0% |
| Ionia | 4.1% | Ionia | 3.0% | 1.1% |
| Detroit | 1.9% | Detroit | 0.8% | 1.1% |
| Missaukee | 1.3% | Missaukee | 0.2% | 1.2% |
| Macomb | 4.6% | Macomb | 3.4% | 1.2% |
| Lenawee | 5.7% | Lenawee | 4.5% | 1.3% |
| Montcalm | 5.1% | Montcalm | 3.7% | 1.3% |
| Marquette | 4.5% | Marquette | 3.1% | 1.4% |
| Newaygo | 3.7% | Newaygo | 2.3% | 1.4% |
| Livingston | 8.4% | Livingston | 6.9% | 1.5% |
| Emmet | 8.1% | Emmet | 6.6% | 1.5% |
| Hillsdale | 4.3% | Hillsdale | 2.8% | 1.5% |
| Shiawassee | 5.1% | Shiawassee | 3.5% | 1.6% |
| Saginaw | 3.0% | Saginaw | 1.2% | 1.8% |
| Charlevoix | 6.3% | Charlevoix | 4.5% | 1.8% |
| St. Clair | 7.2% | St. Clair | 5.4% | 1.9% |
| Wexford | 3.9% | Wexford | 2.1% | 1.9% |
| Manistee | 5.0% | Manistee | 3.1% | 1.9% |
| Genesee | 4.5% | Genesee | 2.5% | 2.0% |
| Oceana | 4.8% | Oceana | 2.7% | 2.0% |
| Berrien | 4.3% | Berrien | 2.2% | 2.0% |
| Arenac | 4.3% | Arenac | 2.2% | 2.1% |
| Chippewa | 4.4% | Chippewa | 2.3% | 2.1% |
| Gd. Traverse | 7.4% | Gd. Traverse | 5.4% | 2.1% |
| Leelanau | 8.4% | Leelanau | 6.2% | 2.2% |
| Dickinson | 6.0% | Dickinson | 3.7% | 2.3% |
| Mecosta | 4.0% | Mecosta | 1.6% | 2.3% |
| Cheboygan | 6.3% | Cheboygan | 3.6% | 2.7% |
| Washtenaw | 6.7% | Washtenaw | 3.9% | 2.7% |
| Midland | 5.7% | Midland | 2.9% | 2.7% |
| Oakland | 6.6% | Oakland | 3.8% | 2.8% |
| Luce | 3.6% | Luce | 0.7% | 2.8% |
| Wayne | 5.6% | Wayne | 2.6% | 3.0% |
| Clare | 6.0% | Clare | 2.9% | 3.1% |
| Gogebic | 5.7% | Gogebic | 2.4% | 3.3% |
| Antrim | 7.2% | Antrim | 3.8% | 3.4% |
| Iosco | 4.8% | Iosco | 1.3% | 3.5% |
| Clinton | 6.5% | Clinton | 2.5% | 4.0% |
| Houghton | 16.6% | Houghton | 11.3% | 5.3% |
| Roscommon | 7.2% | Roscommon | 1.6% | 5.6% |
| Ogemaw | 12.3% | Ogemaw | 2.7% | 9.5% |
| Gladwin | 16.0% | Gladwin | 1.8% | 14.1% |

Figure D-1.

08:15 Tuesday, April 5, 2016 1

Percent of Students with an Immunization Waiver by Local Health Department, 2015



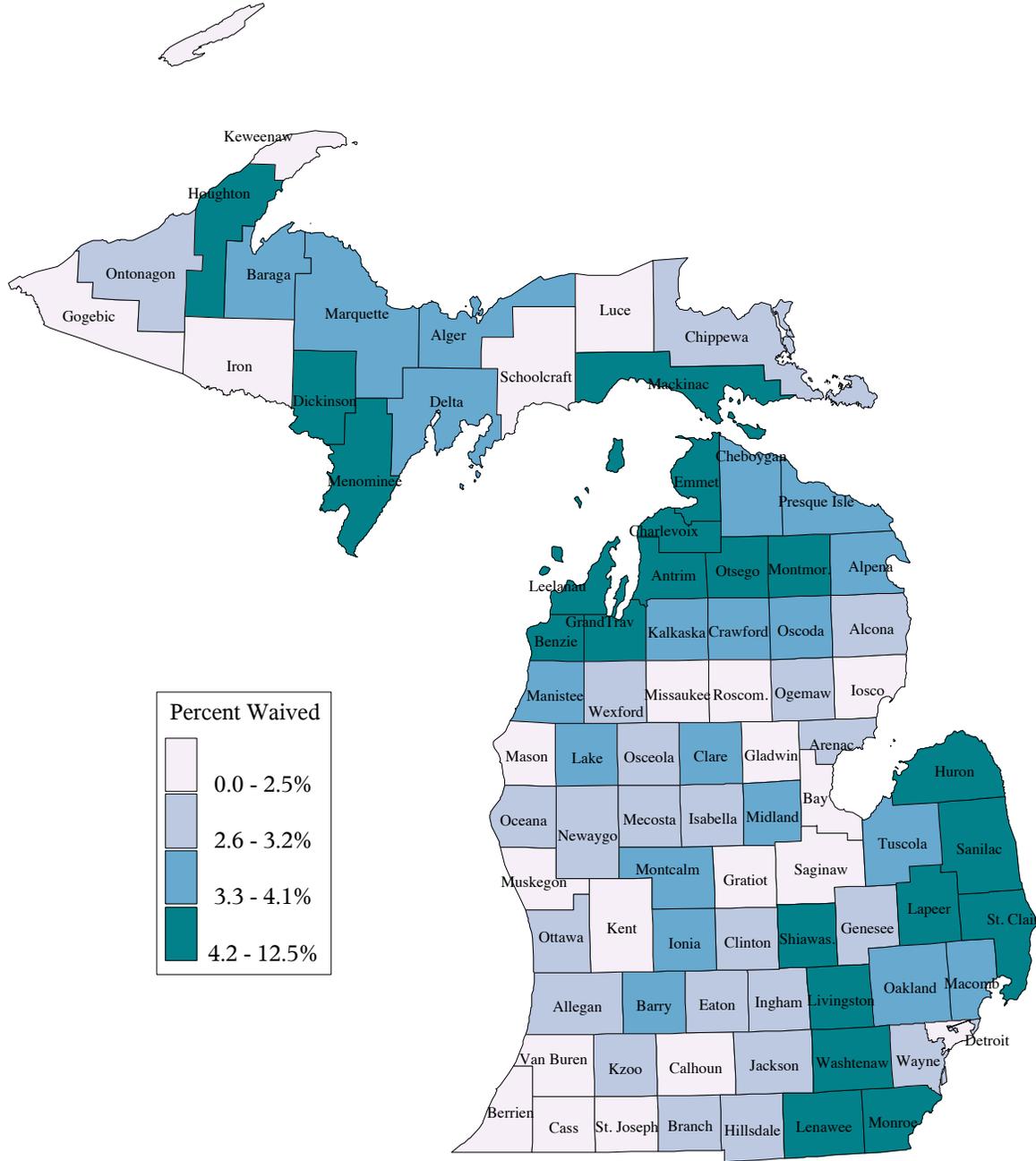
Vaccination requirements for school entry are implemented to protect children from vaccine-preventable diseases. High waiver rates can leave children vulnerable to these diseases.

Map from MDHHS. Available at http://www.michigan.gov/documents/mdch/AllWaivLHD_465669_7.pdf (Accessed 2/10/17)

Figure D-2.

15:55 Wednesday, August 24, 2016 1

Percentage of Students with an Immunization Waiver by County, 2015



Vaccination requirements for school entry are implemented to protect children from vaccine-preventable diseases. High waiver rates can leave children vulnerable to these diseases

Map from MDHHS. Available at:
http://www.michigan.gov/documents/mdch/AllWaiv_465668_7.pdf (Accessed 2/10/17)

Document E-1. Interview Guide: State-Level Staff and Policy-makers

**Local Health Department Implementation of
Michigan Immunization Exemption Law**

PI: Denise Lillvis

Faculty Advisor: Peter Jacobson

Interview Guide: State-Level Staff and Policy-makers

Version Date: January 9, 2017

Respondent ID: _____

Thank you very much for speaking with me today. I am interested in learning more about the Michigan school waiver law that took effect in January 2015. Before we begin, I just wanted to note a couple things:

- As a reminder, you can choose to answer a question off-record or refuse to answer a question.
- There are no right or wrong answers, just your perspective and experiences.
- Some questions are open-ended on purpose.
- If any questions are not applicable to your role, please let me know and we can move on to the next question.

[if consented to record: I have just turned the recorder on]

24. I would like to begin by gathering some information about your professional and educational background:

- a. What is the highest education level that you have achieved?
- b. How long have you served in your current role in state government?
- c. How long have you served in state government overall?

25. Briefly, what is your role in implementing the exemption law?

BACKGROUND ON THE WAIVER RULE

I'd now like to get your perspective on the rule itself, as well as its implementation.

26. Why was this rule created? Probe:

- a. *What are the goals or objectives of the rule?*
- b. *For example, would you say that persuading parents to vaccinate is a key objective?*
- c. *Did you consider convenience waivers a problem? How did you identify this as a particular problem? What informed you that this was a problem?*

27. What were your top considerations when drafting the rule?
 - a. *Public opinion about vaccination?*
 - b. *The perspectives of the governor?*
 - c. *The perspectives of the legislature?*
 - d. *The perspectives of the courts?*

28. Where did your information about waiver education and its benefits come from? *Probe:*
 - a. *Local health departments in Michigan with a waiver education component?*
 - b. *Other states?*
 - c. *Published research?*
 - d. *Your professional network?*

29. What role does the state play in implementing the rule?
 - a. *Guidance*
 - b. *Awareness/Communications*
 - c. *Human Resources*

30. Which state employees are involved in implementing the rule? What are their roles?
 - a. *Regional Immunization Consultants?*

31. What types of funding did the state provide for local health departments implementing the law, and how was this funding allocated?

32. What role do the following individuals or groups play in implementing the rule?
 - a. *The local health departments*
 - a. *Schools or school officials*
 - b. *Health care professionals in the community such as physicians or nurses?*
 - c. *Other groups, such as professional associations (e.g., medical, nursing, public health) or community members*

33. If not addressed above: how can the state encourage schools to comply with the waiver law?

TRAINING AND SUPPORT FOR LOCAL HEALTH DEPARTMENTS

1. What training and support does the state offer local health departments?
2. What are the goals of this training and support?
3. What key themes or best practices do you emphasize in your trainings?
4. I understand that there are two main reasons for nonmedical waivers: philosophic reasons and religious reasons. In what ways is your guidance about religious waivers differently than philosophic waivers?

5. What guidance do you give to local health departments in terms of structuring the sessions? To what extent do the departments have the discretion to hold the sessions as they see fit?
6. What are some reasons that a parents' waiver request might be denied? Or, are waivers always granted if a parent/guardian attends an education session?

DATA/EVALUATION

1. Who do you hold accountable for implementing the rule? In what ways do you hold them accountable?
2. Who do you consider as the stakeholders of this policy? Who is affected by this policy?
3. Can you walk me through the waiver data flow? The parent obtains the waiver at the health department, and then where does it go from there? Where does the waiver go from there?
 - a. *How is this different from what used to happen, prior to 2015?*
 - b. *[If applicable] Why did the data flow change?*
4. In addition to the number of waivers, what other data do you collect about the waiver education programs?
5. How do you evaluate law?
 - d. *What tools do you use to measure success? What data do you collect?*
 - e. *How do you evaluate the policy?*
6. In what ways is the law a success? In what ways is it not as successful?
7. What are the major threats to this law? Probe:
 - a. *How supportive is the governor of this law?*
 - b. *What legislative proposals are you taking note of?*
 - c. *Are their particular court cases you're watching?*
 - d. *What types of interest group activity have you encountered? For example, from small government groups or vaccine critical groups?*

CONCLUDING QUESTIONS

8. Is there anything you would like to add to our conversation today?
9. *[If not already addressed]* Who else would you recommend that I speak to about implementing this new law?

Document E-2 Primary Source Data Consulted

Educational Material

- “Religion” Handout from MDHHS. 02/04/15. Source: http://web.archive.org/web/20151031210717/http://www.michigan.gov/documents/mdch/020415_Waiver_Ed_Religious_480652_7.pdf (Accessed 02/21/17)

Proposed Legislation

- 2015-2016 (Michigan State Legislature Website)

Committee Minutes (archive =

<http://house.michigan.gov/MHRPublic/CommitteeInfo.aspx?comkey=335&year=1516>)

[reviewed minutes for 2015-2016 meetings, does not appear to be any more vac or imm mention in meeting minutes]

- Minutes of the Joint Committee Meeting of the House Standing Committee on Health Policy and the House Standing Committee on Families, Children, and Seniors. Held on 9/9/15. Available at: <http://house.mi.gov/SessionDocs/2015-2016/Minutes/Heal090915.pdf>
- Testimonies are available on the Michigan House of Representatives’ website: <http://house.michigan.gov/MHRPublic/CommitteeInfo.aspx?comkey=335&year=1516> (Accessed 1/24/17).

Regulatory and Departmental Documents

- MDHHS Press release. “Preliminary data shows a statewide decrease in school-age vaccine waiver rates.” http://www.michigan.gov/mdhhs/0,5885,7-339-73970_71692-374966--,00.html (Accessed 2/10/17)
- Departmental Report submitted to the orr (requested from orr@michigan.gov on 1/23/17. Email from Katelyn Hoppes)
- JCAR Report (requested from orr@michigan.gov on 1/23/17. Email from Katelyn Hoppes)

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