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Mike Gruszczynski^a & Sarah Michaels^b

^a Department of Political Science, Austin Peay State University, Clarksville, USA

^b Department of Political Science, Faculty Fellow, Public Policy Center, University of Nebraska, Lincoln, USA

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Localized concerns, scientific argumentation, framing, and federalism: the case of Devils Lake water diversion

Mike Gruszczynski^{a*} and Sarah Michaels^b

^a*Department of Political Science, Austin Peay State University, Clarksville, USA;* ^b*Department of Political Science, Faculty Fellow, Public Policy Center, University of Nebraska, Lincoln, USA*

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A federal government system creates opportunities for proponents and opponents of environmental policy change to shift the institutional home where a policy decision is made and then invoke reasoning tailored for the new venue and to retry or reframe arguments. Content analysis of North Dakota state legislative and US Congressional committee hearings preceding authorization of an outlet connecting Devils Lake, North Dakota to the binational Hudson Bay drainage basin revealed: (1) State and federal legislators were equally likely to invoke constituents' localized concerns in framing arguments, and (2) Scientific evidence did not hold sway in either state or federal hearings.

Keywords: venue shopping; elite framing; federalism; science in legislative deliberations; water diversion; Devils Lake; North Dakota

1. Introduction

In 2005, the State of North Dakota built an outlet that reconnected Devils Lake to the binational Hudson Bay drainage basin, in which it is physically located, through the Sheyenne River, a tributary of the Red River flowing into Canada. For a millennium, Devils Lake has been a closed watershed susceptible to extreme fluctuations in water levels (Kempf, 2007). By unilaterally building the Devils Lake outlet, the State of North Dakota blurred a key historical division upon which US federal authority to make international treaties rested, the 'sharp distinction between what is foreign and what is domestic, between what is external and what is internal' (Bradley, 1998, p. 391). State actions with implications in another sovereign nation fundamentally challenge the historic understanding of foreign policy as the exclusive domain of federal government (Ku, 2006). Indeed, the State of North Dakota action illustrates what Ku (2006, p. 2384) terms 'gubernatorial foreign policy', when a state executive official acts independently of the federal government to implicate relations between the United States and another country.

Such independence has considerable ramifications for the US federal system, in which relationships among governments have been characterized as polycentric (Ostrom, 1973) and non-centralized (Elazar, 1987). With multiple power centers in a non-centralized system, each has its own authorities and competencies, with none dominating the others (Schlager & Blomquist, 2008). The distinguishing feature of federalism is the simultaneous emphasis on achieving self-rule and shared rule (Elazar, 1987). Schlager and

*Corresponding author. Email: gruszczynskim@apsu.edu

Blomquist (2008) note two important implications arising from this form of governance. First, mutual consent and consensus building are the bedrock of joint action. Participants must consider each other because of the multiple veto points in the structure and the constitutional protections provided to citizens and governments. Second, strengthening constituent units, supporting their coordination and communication capacities and providing dispute resolution mechanisms strengthens the polycentric system.

What happens, however, when one of the participants in a federal system is dissatisfied with the prospect of joint action and has the authority and means to decline to participate? This is what happened in 2005, when the North Dakota state government opted to construct its own outlet for Devils Lake rather than contribute to building a US Army Corps of Engineers-designed outlet with more effective environmental safeguards (Kempf, 2007).

The parallel debates occurring in legislative committees at the federal and state level about whether or not to build a Devils Lake outlet provide a valuable opportunity to explore the extent to which localized concerns are invoked in arguments, as well as whether exposure to scientific arguments is different in a setting heavily dominated by local concerns compared to another that is not. The political debate over constructing the outlet revealed a conflict of interest based on differing goals, as one would anticipate from the principal-agent model characterizing the dynamic between federal and state governments. Chubb (1985) argued tensions could be heightened when access to information is asymmetric. In deciding to authorize funds for construction of an outlet with more environmental safeguards, were federal legislators exposed to more science-based evidence than their state counterparts, who opted for an outlet with fewer environmental safeguards? Was the debate framed differently in these two settings?

In light of these questions we pose two hypotheses: (1) State legislators, given their closer proximity to constituents (see Maestas, 2003; Mooney, 1995), are more likely to invoke localized concerns in their framing of issues than are federal legislators; and (2) Given larger constraints on staff and institutional resources (see Hedlund, 1984; Mooney, 1991), as well as less professionalization (see Squire, 2007), state legislators will hear from both fewer scientific experts and a less diverse range of experts than will their Congressional counterparts.

We seek to test our hypotheses by analyzing the use of framing and language within federal and state legislative committee hearings. Policymakers are uniquely positioned to influence policy images through the strategic emphasis of the frames and symbols attached to policy issues (see Schneider & Ingram, 1997; Stone, 2001; Wagner, 2009), and those frames and symbols act as useful windows into both the preferences of and informational resources available to policymakers. We focus particularly upon the frames employed by elites, their use of scientific information, and the composition of hearing witnesses to differentiate between the strategies of policymakers at these differing levels of government. There have been few empirical analyses of policy framing in Congress (but see Gruszczynski & Michaels, 2012; Harris, 2009; Newton, 2008; Tzoumis, 2001), with even less research covering policy framing at the state level (but see Reich & Mendoza, 2008). We are unaware of other policy framing studies examining federal and state legislative committees concurrently.

We begin by sketching a brief account of some of the background of the controversy over authorizing construction of the initial outlet from Devils Lake, North Dakota. We then consider how policy entrepreneurs target a decision setting to promote their chosen policy options. The literature on framing, particularly elite framing, is considered next and integrated into the academic literature on the constraints of state legislative bodies on

policymakers' behavior. Attention then turns to the methodology underlying our analysis and presentation of the results of this research, focusing specifically upon key differences in how federal and state policymakers differ in their framing of and use of knowledge relevant to the policy issue at hand. In the discussion that follows we highlight the ramifications of the primacy of local considerations in political argumentation.

2. Background to construction of the 2005 Devils Lake outlet

For much of the last 4,000 years Devils Lake, North Dakota, has experienced wide fluctuations in its water level. During this time, it spilled out in the Sheyenne River, a tributary of the Red River, at least twice. In 1992 the water level began to rise rapidly, causing flooding in the communities and farmland surrounding the lake (Whorley, 2008). Between 1993 and 2004 the lake quadrupled in volume, rising 24.5 feet and causing \$450 million in flood damages (Hearne, 2007).

Consequently, in 2005 the State of North Dakota built an emergency water diversion project to relieve flooding within the 3,800-square mile Devils Lake basin. This project involved pumping water from Devils Lake into a canal draining into the nearby Sheyenne River (Hearne, 2007). The Sheyenne River is a tributary of the Red River, which flows into the Province of Manitoba, Canada, eventually emptying into Lake Winnipeg, the site of multi-million dollar subsistence, commercial and recreational fisheries. Devils Lake had until then been a closed basin. Building an outlet introduced the prospect of transferring non-native biota into the Hudson Bay drainage basin to which Devils Lake had not been connected for about 1,000 years. The scope of the biological threat from the transfer of viruses, bacteria, fish parasites and non-adult fish was not well understood when the initial outlet was constructed (Whorley, 2008). At the time of outlet construction there was concern about introducing the more degraded water quality of Devils Lake into the Red River system. Without flow through and as a sink for run-off from the surrounding farmland, Devils Lake water had become heavily polluted over the course of human settlement in the region (Ma, Hipel, & De, 2011).

The Devils Lake water diversion project had to be closed 10 days after it was opened in August 2005 due to the high levels of sulfates found in the Sheyenne River, the river into which the outlet drained. Returning the outlet to operation required the North Dakota State Health Department to raise the maximum allowable sulfate concentration level in the Sheyenne River (Ma et al., 2011). In 2011 the International Joint Commission released a scientific report indicating waters from Devils Lake did not present a definite threat to the downstream water quality and ecology of waters flowing through the Canadian Province of Manitoba (Bensley et al., 2011).

In opting to build its own outlet for US\$28 million, the State of North Dakota rejected a Congressionally authorized project for fiscal year 2003 estimated to cost US\$186.5 million, for which the State would have been responsible for paying 35% (US\$64.9 million) and the annual operating costs of about US\$3 million (Kempf, 2007). Funding was conditioned upon federal/state cost sharing, the Devils Lake flooding constituting an emergency according to the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the construction being of an acceptable standard and complying with the National Environmental Policy Act of 1969, and it not violating the 1909 Boundary Waters Treaty between the United States and Canada (United States Congress, 2002). Since the state-constructed outlet did not involve US federal funds or jurisdiction, it was not subject to major federal oversight, including being economically justified, undergoing an environmental impact assessment or satisfying the terms of an international treaty. The North

Dakota project did not include environmental safeguards comparable to what would have been required by a project involving the federal government (Whorley, 2008). This outcome was more in line with Adler's (2007) contention that federal government efforts to protect the environment tend to surpass state efforts, rather than Potoski's (2001) assertion that states regularly exceed federal environmental standards.

While the specifics of the federal outlet project were never fully sketched out, they included installation of a sand filter for removal of particulates larger than two microns in size, as well as reducing mercury, nitrogen and phosphorous particulates (Whorley, 2008). Using federal funds would have necessitated satisfying water quality standards and environmental regulations laid out in the US National Environmental Policy Act and the Boundary Waters Treaty (Ma, 2008).

The dispute over the discharge of Devils Lake water strained Canada-US transboundary water relations (Whorley, 2008). In large part this was because the Boundary Waters Treaty (the Treaty) of 1909 and the International Joint Commission (IJC), created by the Treaty to prevent and resolve disputes over water flowing across and between the two countries, were not brought into play before the outlet was constructed (Whorley, 2008). The Treaty provides a framework for amicable bilateral, international water relations (Kempf, 2007) in part because of the historical expectation that treaty laws trump state laws (Bradley, 1998) and that the federal government will deliver subnational government compliance (Swaine, 2003).

The State of North Dakota proceeded with constructing the Devils Lake outlet notwithstanding US federal government disapproval. There was much concern about operating outside the Treaty framework and broader bilateral relationships. The fear was about establishing a precedent for affirming unilateral action, one-off solutions shaped by local interests and avoiding an appropriate environmental assessment (Whorley, 2008).

3. Venue shopping

The controversy over building an outlet for Devils Lake exemplifies a wicked problem because it involves considerable conflict over goals, significant technical disputes, and multiple actors operating at different government scales (Hoppe & Peterse, 1993). It is this last attribute that made venue shopping a viable option for policy entrepreneurs who wished to see the Devils Lake outlet constructed. Baumgartner and Jones (1993, p. 32) define venues as 'institutional locations where authoritative decisions are made'. These include Congress and state legislatures. Venue shopping refers to policy entrepreneurs seeking out a decision setting to promote policy options different from those in place. Successfully moving decision-making authority to a new venue can result in achieving significant policy change stymied in the previous venue (Pralle, 2003). The advocacy coalition framework (Sabatier & Jenkins-Smith, 1993, 1999) and the punctuated equilibrium model (Baumgartner & Jones, 1993), conceptualizations of policy change, ratify venue shopping as an essential component of both the policy process and political strategies (Pralle, 2003).

While Lindblom (1968) and Rose (1976) argued that political systems composed of multiple policy venues hinder policy development because changes can be blocked in a number of venues (Pralle, 2003), Baumgartner and Jones (1993, p. 240; emphasis in original) argue that '*many venues of politics work against conservatism*'. This is because multiple venues make possible venue shopping, which in the punctuated equilibrium model is one driver of policy system turbulence (Pralle, 2003). These alternative venues allow dissatisfied policymakers to sidestep obstacles rather than confront them.

In the context of a federal system, venue shopping can be understood as policy entrepreneurs' efforts to exploit what Bednar (2011, p. 275) describes as 'competition over the boundaries of authority' between state and federal governments. Opportunism is understandable and to be expected in a federation where governments are amenable to testing the rules distributing authority (Bednar, 2006, 2009, 2011).

Evidence of venue shopping is widespread. It has been employed by policymakers, advocacy groups and social movements when they have not achieved their desired ends at different stages of the policymaking process. Such stages include policy agenda-setting, adoption and implementation, in pursuing a range of causes, such as the environment, civil rights, anti-abortion and tobacco control (Ginsberg, 1989; Handler, 1978; McAdam, 1982; Pralle, 2003; Rabe, 2013). Through venue shopping, policymakers can exploit the differences in venues in terms of 'rules of access and participation, their procedures governing decision-making, their constituencies, and the incentives facing institutional actors' and the policy solutions they can generate (Pralle, 2003, p. 237). For example, state governments may have more or less capacity to deal with a policy problem than the federal government (Pralle, 2003). Consequently, we can anticipate different framing strategies in different venues as policymakers adapt their policy claims to the venue.

4. Framing and legislative hearings

The use of frames in describing the political world serves to scope the range of considerations policymakers use in addressing social problems (Steensland, 2008). Frames are 'central organizing ideas that provide meaning' (Gamson & Modigliani, 1987, p. 143). The myriad ways in which policy issues are framed by elites is very important to our understanding of policy change and process (see Lasswell, Lerner, & de Sola Pool, 1952; Straus, 2011). The success or failure of legislative attempts to make policy often pivots on which side in a debate manages to dominate the language surrounding the policy, including the strategic emphasis on certain characteristics of an issue at the expense of others. Much of the research in this area confirms the strategic nature of defining and redefining issues (Rochefort & Cobb, 1994; Stone, 1988; Tarry, 2001). For example, policy issues are strategically defined and framed by advocacy groups and policymakers to gain the attention of other policymakers and the public (Pralle, 2003). Successful framing attempts alter not only how individuals think about policies, but also the degree of support or opposition they give to policies and their targets (see Baumgartner, De Boef, & Boydston, 2008; Gerrity, 2009; Newton, 2008).

Framing reflects image manipulation, a critical tactic in venue shopping. Baumgartner and Jones (1993, p. 36) note 'changes in image are used purposefully, ... to attract the attention of the members of a particular venue'. Proponents redefine an issue 'to suit the discourse and norms of the institutions they are soliciting for support' (Pralle, 2003, p. 242). For example, 'to move an issue to the subnational level' requires highlighting 'the local origins or impacts of the policy problem so as to engage policymakers and publics at the local level' (Pralle, 2003, p. 242).

When framing attempts are unsuccessful in one venue, policymakers have the option of spurring policy change by shifting to a new policy venue and either promoting their existing framing or an alternative policy problem definition. While Pralle (2003) argues political systems with multiple venues make it possible for outsiders to promote new policy problem definitions with associated new solutions, we argue a new venue provides insiders with a second chance to promote variations of existing problem definitions and solutions.

The complexity inherent in public policy means there are numerous potential avenues to take in framing issues (May, Sapotichne, & Workman, 2006). The process of dominant frames

emerging and persisting over time means many of these potentialities lie dormant, unused for much or all of a policy debate's life cycle (see Baumgartner & Jones, 1993, 2009; Baumgartner et al., 2008; Gamson & Modigliani, 1987, 1989). These dormant frames have the potential to shift to a preeminent position with the occurrence of external punctuations (Baumgartner & Jones, 1993, 2009) or focusing events (Kingdon, 2010), often with consequences of upending the once-dominant policy monopoly in that issue area. Elites thus have an intrinsically strategic motivation to highlight policy considerations amenable to their preferences at the expense of other considerations that may be detrimental to their cause.

Elite framing in general has gained much attention in the last decade of framing research, even while the literature on elite framing in Congress is somewhat under-studied (but see Harris, 2010; Newton, 2008; Tzoumis, 2001); in research on state legislatures, the situation is even more acute (but see Reich & Mendoza, 2008). Studies have repeatedly shown that elites proactively attempt to shape the terms of debate through framing in a variety of issue areas, including race (Kellstedt, 2005), abortion (Ferree, Gamson, Gerhards, & Rucht, 2002; Gerrity, 2009), the environment (Tzoumis, 2001), taxes (Schaffner & Atkinson, 2009), nuclear energy (Baumgartner & Jones, 1993; Gamson & Modigliani, 1987, 1989), health care (Jerit, 2008), poverty (Iyengar, 1994), welfare (Stone, 2012; Schneider & Ingram, 1997) and the death penalty (Baumgartner et al., 2008).

The importance of framing strategies in attaining legislative success is nowhere more evident than in policy debates within the US Congress and state legislatures. Elite framing at the federal level continues to receive considerable attention among academics, but lacking is an understanding of elite framing at the state level (but see Nie, 2004; Reich & Mendoza, 2008). While we might anticipate elites at this level of government to engage in strategic framing similarly to their federal counterparts, distinctive characteristics of state level political participation may instead lead to important differences in framing attempts.

Since state legislators spend more time in their home states than federal legislators who commute to Washington, DC they tend to be more accessible and connected to their constituencies than their federal counterparts. As a result they are more responsive to the demands of their constituents, their colleagues and their political party, especially when they aspire to either retain their current offices or obtain higher office (Jewell, 1982; Maestas, 2003). Of course federal legislators with the same aspirations also are subject to these pressures (see Fiorina, 1974).

Responsiveness to constituents' demands might affect legislative policy framing in that state elites, given constituency proximity, have more incentives than do their federal counterparts to balance their personal and partisan preferences with the preferences of their constituents (Reich & Mendoza, 2008). In a study of the effects of state legislature characteristics on public opinion, Squire (1993) found that legislators with smaller constituencies tended to receive more contact from citizens than those with larger constituencies. Consequently, we posit that North Dakota State Assembly legislators are better positioned than their federal counterparts to frame policies as beneficial to key constituencies and thereby are better able to accrue support from constituents (Reich & Mendoza, 2008). This brings us to our first hypothesis:

H₁: State legislators will be more likely to invoke local or state-level concerns in committee deliberations than their counterparts in Congress.

The second piece of this research puzzle involves the differences in the information federal and state legislators will use in framing issues. Much of this has to do with

variations in resources at the state and federal legislative levels. The US Congress is highly professionalized and employs large legislative and committee staffs, has impressive informational resources in repositories and agencies, and has a highly specialized hierarchy of committees (see Baumgartner & Jones, 1993, 2009).

The resources available to state legislatures, on the other hand, are much more varied (Moncrief, Thompson, & Cassie, 1996). For example, legislative bodies in more populous states, such as the New York State Assembly or California State Legislature, are characterized by higher informational resources and staffing budgets than smaller legislatures, such as the North Dakota State Assembly or the Nebraska Unicameral legislature. As such, we should expect, compared to their federal counterparts, that North Dakota State Assembly members will have fewer resources in the form of scientific expertise, institutionalized agency knowledge, and fewer staff and library resources to access information on the effects of policymaking activities. This brings us to our second hypothesis:

H2: State legislators will hear from (1) fewer experts and (2) a less diverse range of experts than will their Congressional counterparts due to lower informational, institutional, and staff structures.

We turn now to the methods employed in this research.

5. Methods

We obtained 17 committee documents related to building an outlet from Devils Lake, one hearing from the US Congress, specifically the US Senate, and 16 sets of minutes from the North Dakota State Assembly, eight in the North Dakota Senate and eight in the North Dakota House of Representatives. See Table 1 for a breakdown of hearings coded in the analysis. Each of the documents was content analyzed by loading them individually into PDF-markup software and annotating each frame, affiliation of the frame's speaker, and whether the speaker was an expert witness such as a scientist or engineer. Following completion of the initial markup, we entered frame occurrences into an Excel spreadsheet and imported the resulting dataset into statistical software for subsequent analysis.

Following Gamson and Modigliani (1987, p. 143), frames were operationalized as a 'central organizing idea or story line' providing context by highlighting one concern rather than others. We conducted pre-coding on a randomized subset of the documents to surmise which frames would likely be encountered in the research, arriving at a set of 185 possible frames (see Weber, 1990). We opted to create a frame set of high specificity for purposes of removing as much ambiguity as possible in forming text-frame combinations, as per Gamson and Modigliani (1987, 1989); (see also Wagner, 2009). As a result our set of frame codes includes a large number of possible codes. Examples of possible frames include 'downstream water quality concerns are not serious' and 'increase water recreation'. See Appendix 1 for an exhaustive list of frames coded in this analysis.

In total, 477 frames were found and coded in this analysis. Intercoder reliability was assessed by taking a random subset of 10% of the hearing documents and subjecting it to analysis by another coder; the sample selected ended up accounting for 34% of the total set of frames coded in the analysis. We selected Krippendorff's alpha as a measure of coder reliability because of the procedure's ability to account for disagreement that is due to chance or disagreement due to systematic disagreement (see Krippendorff, 2003). Our

Table 1. Hearings analyzed related to the initial outlet from Devils Lake, North Dakota.

	Date	Committee	Hearing Title
<i>US Senate</i>	23 Oct. 1997	Environment and Public Works	<i>Flood Control at Devils Lake</i>
<i>N.D. House of Representatives</i>	23 Oct. 1997	Garrison Diversion Overview	<i>Minutes</i>
	11 Dec. 1997	Garrison Diversion Overview	<i>Minutes</i>
	19 Feb. 1998	Garrison Diversion Overview	<i>Minutes</i>
	9 Jun 1998	Garrison Diversion Overview	<i>Minutes</i>
	17 Sept. 1998	Garrison Diversion Overview	<i>Minutes</i>
	21 June 1999	Garrison Diversion Overview	<i>Minutes</i>
	17 Sept. 1999	Garrison Diversion Overview	<i>Minutes</i>
	5 July 2000	Garrison Diversion Overview	<i>Minutes</i>
<i>N.D. Senate</i>	10 Oct. 2001	Water-Related Topics	<i>Minutes</i>
	12 Aug. 2009	Water-Related Topics	<i>Minutes</i>
	15 Mar. 2010	Water-Related Topics	<i>Minutes</i>
	14 June 2010	Water-Related Topics	<i>Minutes</i>
	20 Sept. 2010	Water-Related Topics	<i>Minutes</i>
	12 July 2011	Water-Related Topics	<i>Minutes</i>
	30 Aug. 2011	Water-Related Topics	<i>Minutes</i>
	10 Oct. 2011	Water-Related Topics	<i>Minutes</i>

initial reliability check netted $\alpha = .968$, a high degree of agreement suggesting our coding scheme is reliable.

6. Results

We first turn to Hypothesis 1, which posited state legislators would invoke more state and local concerns in committee hearings than their federal counterparts. Table 2 presents the frames used by state legislators in the North Dakota State Assembly ranked by frequency of frame occurrence.

A total of nine frame instances were coded for North Dakota committee meetings, and the frames employed by North Dakota state policymakers are telling. With the exception of the ‘need to examine downstream water quality frame’, which occurred once, all of the frames used by state policymakers emphasized localized concerns, specifically the impact of uncontrolled water on the local economy, homes, transportation, and flood control mechanisms. None of the frames used by these policymakers focused on the potential benefits of an outlet from Devils Lake, instead emphasizing the consequences of not having an outlet on the economy and infrastructure of the state.

Table 2. Frames used by state legislators in North Dakota State Assembly Legislative Committee Hearings pertaining to constructing an initial Devils Lake outlet.

Frame	Percent of Total Frames?	Frequency
Economic impact of floods	33.3%	3
Loss of homes from floods	33.3%	3
Impact of floods on transportation	11.1%	1
Impact of floods on dikes	11.1%	1
Need to examine downstream water quality	11.1%	1

Contrast these findings with Table 3, which presents the frames employed in the 1997 US Senate committee hearing related to constructing the initial Devils Lake outlet. The most frequently used frame emphasized that there was no connection between the outlet and a controversial inlet proposed previously as part of a larger project to divert water from the Missouri River. Similar to their state legislative counterparts, federal policymakers spent a fair amount of time highlighting the ongoing consequences of not having an outlet, including the loss of homes (7 instances), economic impacts (5), loss of medical services resulting from roads made impassible by flooding (4), impact of floods generally on transportation (3), decreased water quality resulting from flooding (2), and degraded water quality in general (2). Moreover, we found that members of the North Dakota delegation to Congress were just as likely to emphasize local concerns as their state counterparts when promoting the construction of an outlet from Devils Lake.

In the Senate committee hearing, the North Dakota delegation also highlighted benefits to be accrued from outlet construction aside from alleviating flooding in their home state. These included improved consistency of water resources (10) and better water quality (5). North Dakota federal elected officials challenged criticisms of outlet construction, contending downstream water quality concerns were exaggerated (5), the economic benefits of the proposed infrastructure outweighed the costs (4), and outlet construction would comply with the National Environmental Policy Act (NEPA). Pertaining to this last point though, these policymakers stressed there was not enough time to evaluate the environmental impact of the proposed outlet as required by NEPA.

Given these findings, our first hypothesis does not hold. Regardless of whether the venue was federal or state, North Dakota policymakers emphasized local concerns, notably past impacts of unregulated Devils Lake water levels.

We move next to the second hypothesis, which posited given fewer legislative resources at the state level, a committee hearing of the North Dakota State Assembly would feature both less expert testimony and a less diverse range of experts (whether testimony is in the form of

Table 3. Frames used by North Dakota federal legislators in the 1997 Senate Hearing (1997) pertaining to constructing an initial Devils Lake outlet.

Frame	Percent of Total Frames	Frequency
No connection between inlet/outlet plans	11.7%	11
Water stability from outlet	10.6%	10
Loss of homes from floods	7.5%	7
Improved water quality from outlet	5.3%	5
Downstream water quality concerns not serious	5.3%	5
Economic impact from flooding	5.3%	5
Must take holistic approach to solution	4.3%	4
Not enough time to evaluate environmental impact	4.3%	4
Impact of flooding on medical services	4.3%	4
Economic benefits outweigh costs	4.3%	4
Outlet must be environmentally sound	3.2%	3
Impact of drought on agriculture	3.2%	3
Impact of flooding on transportation	3.2%	3
Downstream water quality impact from outlet	2.1%	2
River water quality impact from flooding	2.1%	2
Uncontrolled water quality without outlet	2.1%	2
Outlet will comply with NEPA	2.1%	2

scientific or engineering expertise) than a Congressional committee hearing. Table 4 presents a breakdown of engineering and scientific expert testimony featured in federal and state hearings about constructing an initial outlet from Devils Lake.

The table presents the number of statements as a percentage of all hearing statements from experts, with either an engineering or scientific background, who testified in these hearings. Engineers figured much more prominently in federal and state hearings than did scientists. In both the North Dakota and federal committee hearings concerned with construction of a Devils Lake outlet, engineers emphasized the need for proposed infrastructure for a variety of reasons, including mitigating flooding, the technical feasibility of outlet related infrastructure, the impact of flooding on flood control mechanisms, and the loss of homes due to flooding. Additionally, engineers in both the state and federal hearings claimed an outlet would decrease water salinity and improve water quality.

There were nine statements by scientists in the federal hearing and eight statements in the state hearings. The Chi-square test of the table figures reveals no significant pattern of relationship between the amount of testimony from either scientists or engineers across the two hearing venues ($\chi^2 = 2.44, p = .118$). In other words, the breakdown of the number of engineers and scientists presenting their expertise within the hearings did not differ between venues to a systematic extent. Thus, our second hypothesis was rejected: the North Dakota Legislative Assembly did not hear from fewer expert witnesses than did their federal counterparts.

Table 5 provides the breakdown of the affiliations of scientists testifying about the proposed Devils Lake diversion in the federal and state committee hearings about the construction of a Devils Lake outlet. While 100% of expert scientific testimony in the Senate committee hearing originated from members of natural resources agencies, only 25% originated from such agencies in the North Dakota legislative committee meetings about constructing a Devils Lake outlet. The other 75% of scientists testifying in the North

Table 4. Expert testimony by engineers and scientists at federal and state legislative committee hearings on the initial Devils Lake outlet.

	US Senate		N.D. State Assembly	
	Percent	Frequency	Percent	Frequency
Engineers	11.33%	35	41.67%	70
Scientists	2.91%	9	4.76%	8
$\chi^2 = 2.44, p = .118$				

Note: Percentages are the proportion of total statements within the total of each venue's hearings.

Table 5. Affiliation of scientists testifying in federal and state legislative committee hearings about the Devils Lake outlet.

	US Senate		N.D. State Assembly	
	Percent	Frequency	Percent	Frequency
Natural resources agencies	100%	9	25%	2
Public health agencies	0%	0	75%	6
$\chi^2 = 17.0, p = .002$				

Note: Percentages are the proportion of total statements within the total of each venue's hearings.

Dakota hearings were associated with public health agencies. There was a significant difference in the pattern of association between the two hearings ($\chi^2 = 17.0, p = .002$). In other words, there was a systematic difference in the affiliations of scientific experts testifying between the two venues, with more expert testimony provided by those affiliated with natural resource agencies in the US Congress and more expert testimony provided by those affiliated with public health agencies in the North Dakota Legislative Assembly.

Scientists contributing expert testimony framed their arguments in similar ways in both federal and state committee hearings. For example, scientists testifying in the North Dakota Legislative Assembly committee hearings emphasized the need to protect downstream water quality, to engage in water treatment, and the water flowing from the outlet must meet water quality standards. Likewise, scientific testimony in the salient Senate committee hearing, much of which came from the staff of the Minnesota Department of Natural Resources, stated the environmental impact of the outlet must be investigated, as well as the potential impact on downstream water of Devils Lake water and a need to protect downstream water quality. Ron Norgang, a representative from the Minnesota Department of Resources also made the connection between Devils Lake inlet and outlet plans. Additionally, David Schorr, a representative from the Missouri Department of Resources emphasized the outlet would not solve flooding problems, the necessity of studying potential downstream water quality impacts, the need to conduct environmental impact studies, and the connection between plans for an inlet and outlet for Devils Lake.

7. Discussion and conclusion

While mutual consent and consensus building may be at the heart of joint action in federal forms of government (Schlager & Blomquist, 2008), such an approach may be bypassed completely when one government unit in a federal system can proceed unilaterally. The State of North Dakota was able to decline Congress' offer of constructing jointly an initial outlet for Devils Lake. North Dakota's rejection of federal funding is in line with the increasing frequency with which states are turning down federal funding for a range of issues including abstinence-only education for teenagers, federal stimulus funding, the arts and setting up health insurance exchanges (Doan & McFarlane, 2012). Partisanship and ideology in these other cases may have driven states to defy the expectation of their maximizing intergovernmental revenue (Doan & McFarlane, 2012).

It is hard to make the case that constructing the initial outlet from Devils Lake was simply a function of partisanship in either Congress or the North Dakota State Assembly. For example, on 23 January 2003, the two US Senators from North Dakota, Byron Dorgan and Kent Conrad, both Democrats, attached a rider to the fiscal year 2003 omnibus spending bill, H.J. Res 2. The rider authorized \$100 million for the Corps of Engineers' Devils Lake Project, waiving the requirement that benefits must exceed costs of Corps projects and eliminating the necessity of consulting Canadian officials on the project. Republican Senator John McCain of Arizona, Democratic Senator Mark Dayton of Minnesota and Republican Senator Norm Coleman of Minnesota introduced an amendment to remove the rider from the omnibus spending bill. Their amendment was defeated by a vote of 62 votes to 35 with four senators not voting. The 62 votes to kill the bill were cast by 28 (45%) Republicans and 34 (55%) Democrats. The 35 votes in support of the amendment were cast by 23 Republicans (68%) and 11 Democrats (32%). All four Senators who did not vote were Democrats.

In the North Dakota State Assembly there was likewise overwhelming bipartisan support for constructing the initial outlet. This was apparent in three bills focused exclusively on

making a state funded Devils Lake outlet happen after North Dakota Senate Bill No. 2188 authorized \$20 million for a Devils Lake outlet as part of a bill encompassing statewide water development and bonds in 1999 (North Dakota Senate, 1999). In both 2001 and 2003, bills were passed with overwhelming majorities to extend the State Water Commission's authority to issue bonds to construct an outlet from Devils Lake for two years. In 2001, while there were 10 state representatives who did not cast a vote to support the extension, of the 88 who did vote, 28 were Democrats and 60 were Republicans (North Dakota House, 2001, p. 950). In 2001 46 of the 49 Senators voted for the extension, 14 Democrats and 32 Republicans. Of the three Senators who voted against the extension that year two were Democrats and one was a Republican (North Dakota Senate, 2001, p. 623). Two years later two of the Representatives did not vote while 92 voted in favor, 26 Democrats and 66 Republicans (North Dakota House, 2003, p. 963). For the same bill all of the Senators, 16 Democrats and 31 Republicans supported the extension (North Dakota Senate, 2003, p. 1027). More controversial was the 57th Legislative Assembly House Bill 1151 deleting the requirement that federal government participate in constructing the Devils Lake outlet before bonds may be issued and authorizing the State Water Commission to use 'quick take' eminent domain to acquire property for constructing the Devils Lake outlet. Nonetheless there was widespread bipartisan support for the bill. It passed in the State House of Representatives by a vote of 78 to 20, with 26 Democrats and 52 Republicans supporting the bill and with four Democrats and 16 Republicans opposed (North Dakota House, 2001, p. 372). Forty-six Senators voted in favor of the bill, 14 Democrats and 32 Republicans while two Democrats and one Senator voted against it (North Dakota Senate, 2001, p. 881).

The State of North Dakota's decision to build the initial outlet can be understood pragmatically by looking at the financial implications for the North Dakota taxpayer: the cost of participating in fiscal federalism far exceeded what it cost to go it alone. What is noteworthy given both the State's financial pragmatism in proceeding without federal involvement and our interest in venue shopping is that proponents of constructing a Devils Lake outlet invested so much effort first in trying to get Congress to support building an outlet on terms acceptable to the State of North Dakota.

The reference to the connection between plans for an inlet and an outlet to Devils Lake by elected members from North Dakota and Minnesota and by testifying experts from the Minnesota Department of Resources and the Missouri Department of Resources in the Senate committee hearing we investigated provides an important clue as to why Congress was the initial venue of choice for those advocating for an outlet from Devils Lake in the late twentieth and early twenty-first century. Beginning with the 1944 Flood Control Act, the North Dakota Congressional delegation has advocated for a succession of schemes diverting water from the Missouri River in North Dakota to provide central and eastern North Dakota with irrigation, municipal water supplies and water based recreation (Gruszczynski & Michaels, 2012). In some of these schemes it was proposed that Devils Lake be turned into a reservoir with water coming into it from the Missouri River and water from it going into the Hudson Bay Drainage Basin. The prospect of interbasin water transfer was a highly controversial prospect on ecological and economic grounds. This history had two implications for the late twentieth/early twenty-first century debate about building an outlet to alleviate flooding in the Devils Lake Basin. First, proponents of the outlet for flood relief had to make it clear their proposal was not a first step in developing interbasin water transfer. Second, having not seen North Dakota benefit as much as anticipated from the 1944 Flood Control Act, members of the North Dakota State delegation and their allies worked hard to attain compensatory water infrastructure largess, such as an outlet from Devils Lake, from Congress.

When these efforts did not result in a proposal acceptable to the State of North Dakota, outlet proponents turned to the North Dakota State Assembly.

Being able to take unilateral action as a response to localized concerns speaks to the viability of shifting from a venue requiring shared rule to one of self-rule. The implications of this reality go beyond environmental concerns. For example, this has been illustrated recently by states implementing their own immigration laws in response to constituents' dissatisfaction with federal legislative activity on that issue (Cunningham-Parmeter, 2011; Newton, 2008).

Our results also document how, regardless of venue, local concerns are foremost in the rhetoric, if not the concerns, of elected officials. This has a number of important ramifications. First, it provides a rationale for venue shopping easily explicable to constituents and palatable to elected officials operating in the venue being vacated advocating for policy change. Second, while we demonstrate elected officials tailor their arguments to the venue in which they are operating, the core elements of their arguments transfer readily between proponents working in different venues. Third, as we establish, the arguments of a state's Congressional delegation are more in sync with the arguments proposed by legislators within that state than members of Congress from other states. It would be worth testing whether such congruence is a predictor of venue shopping. Fourth, however compelling scientific evidence may be in explaining risk to the natural environment, commitment to addressing local constituents' immediate concerns is weighted more heavily. This is true at both the state and federal venue for elected officials whose constituents are experiencing duress.

Our results also provide us with further insight into the use of framing. We can see how federal and state legislators from North Dakota tailored their framing strategies to the venues in which they were operating. For example, federal legislators presented a more multi-faceted argument than did their state counterparts. Federal legislators presented counterarguments to criticisms that were not as nearly well developed in state level deliberations. The framing reflected the target audience and who needed to be satisfied about what concerns. At the same time, some of the framing strategies employed between the two levels of government overlapped, with both sets of legislators emphasizing the local consequences of flooding.

We think comparing how federal and state legislators approach analogous concerns is valuable to gain insights into how issues play out similarly or differently in different venues. At the same time we acknowledge such comparisons are not unproblematic. For example, while testimony is generated for Congressional committee hearings, in North Dakota records of committee meetings took the form of minutes. We believe there is even more to be understood about the federal system through the use of comparative framing research at the state and federal levels than just the evidence we have presented in this analysis. Further investigation will provide scholars of policy with a greater understanding of how policy is made across a federalist system of governance.

This research also demonstrates the feasibility and ease of venue shopping when the arguments from one venue are readily transferred to another. While such a shift served well the local interests of North Dakotans, the change of venue effectively precluded wider debate over the consequences of building an outlet for those downstream. Such a shift is particularly troubling for environmental-related concerns that not unusually have consequences beyond the jurisdiction initially implicated. Given that hearings at the federal level are more likely to invoke the concerns of other states as to the consequences of proposed action, this ease in venue shopping has the capacity to lead to policies troubling for other governments within the United States system of federalism. Consequently, we believe it to be advantageous to study further the use of policy framing and information use when policy advocates shift their attention to the state level when they do not obtain results at the federal level.

While science has been a tool in political deliberations in other situations (Litfin, 2000; Nicholson-Crotty, 2005; Weible, 2008), it would be hard to make the case that it was a significant consideration in the framing of proponents' arguments for building an outlet in the state and federal legislative committee hearings examined. This provides further evidence science is neither smoothly nor linearly inserted into policy (Demeritt, 2001; Jørstad & Skogen, 2010; Lövbrand 2007). Yet if decisions are to be grounded in reality, incorporating environmental science into policy is critical (Bocking, 1997; Jørstad & Skogen, 2010; Pielke, 2007). There is evidence this may happen in the management of the waters of the binational Hudson Bay drainage basin in the aftermath of the construction of the Devils Lake outlet to the Sheyenne River. The conclusion by the Bensley et al. (2011) report that waters from Devils Lake do not pose a definite threat to downstream water quality and ecology of waters contributed to alleviating political tension and enabling a collaborative policy environment among the State of North Dakota, the US government, the Province of Manitoba and the Canadian government (Michaels & Gruszczynski, 2013).

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The research was conducted at the University of Nebraska.

Notes on contributor

Dr. Mike Gruszczynski is an Assistant Professor of Political Science at Austin Peay State University. His primary areas of interest are political communication and psychology.

Dr. Sarah Michaels is a Professor in the Department of Political Science and a Faculty Fellow in the Public Policy Center, University of Nebraska. Her research interests are in water resources policy and governance, the interfaces between science and policy, comparative environmental policy and regional governance. Her current work explores uncertainty in environmental decision-making.

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Appendix 1. Frame Coding List

Broad category – Uses

Water quality

Improved water quality from manipulation
Manipulation decreases salinity
Manipulation benefits downstream water quality interests

Economic uses

Economic growth from manipulation
Job creation through water development
Jobs for returning troops
Expand national economy
Economic need for water supply

Flood control uses

Flood control
Debate over apportionment of flood control benefits
Flood control should be primary concern

Agricultural Uses

Increase agricultural economy
Irrigation needs
Preservation of agrarian way of life
Increase family farms
Irrigation expands agricultural production
Expansion of usable agricultural land
Irrigation expands land use efficiency
Irrigation stabilizes agriculture
Increase agricultural diversity
Does not increase agricultural diversity
Increases agricultural land value
Feed the world
Feed the nation
Irrigation uses practical
Irrigation uses not practical
Aquifer recharge
Drainage of non-irrigable land
Irrigation should be primary concern

Industrial uses

Industrial development
Industrial water supply
Produce raw materials for industry
Protection of industry

Energy uses

General power needs
Increase hydroelectric supply
Cheaper power from manipulation

Transportation/navigation uses

General navigation needs
Increased water navigation for economic development
Will not increase water navigation
Need for water as transportation tool
Plan must include railroad infrastructure protection

Military uses

Water supply for military bases
Protection of military bases
Manipulation increases national security

Recreational uses

Economic benefits of water recreation

Increase recreational fisheries
Increase water recreation
Increase migratory bird resources
Do not increase migratory bird resources
Develop wildlife resources
Must make provisions for fish/wildlife resources
Debate over fish/wildlife provisions
Conservation of wildlife resources

Population uses

Drinking water supply needs
Population growth needs
Community protection
Rural flight mitigation
Domestic/municipal water supply

Engineering uses

General engineering questions
Water stability from manipulation
Water instability from manipulation
Water stability as result of dams
Water instability from dams
Water stability from levees
Water instability from levees
Cross basin transfer for water stability
Water conservation most suitable solution
No connection between inlet/outlet plans
Connection between inlet/outlet plans
Must take holistic approach to solution
Manipulation only one consideration in solution
Control of water resources necessary
Manipulation is technically sound
Manipulation not technically sound
Soil erosion protection
Unused manipulation water should be returned to parent river
Must use water most effectively
Enough water for manipulation

Broad category – Impacts

Water quality impacts

Downstream water quality impact from manipulation
Downstream water quality concerns not serious
Need to examine downstream water quality concerns
Uncontrolled water quantity without manipulation
Uncontrolled water quality without manipulation
Impact of flooding on water quality
Water treatment necessary
Operation of manipulation must meet water quality standards
Dissolved solids concerns
Pesticide concerns
Sulfate concerns
Nitrogen concerns
Siltation concerns

Ecological impacts

General ecological impact
Ecological costs outweigh benefits
Manipulation must be environmentally sound
Environmental safeguards must be reasonable
Environmental impact must be investigated
No significant environmental impact from manipulation
Waterfowl/waterfowl habitat impact

Wildlife impact from manipulation
Fish and wildlife mitigation costs
Failure to preserve natural resources
Wetlands impact
Biota transfer concerns
Cost of biota treatment necessary expense
Biota treatment necessary requirement
Invasive species concerns

Economic impacts

Economic impact of flooding
Economic impact of drought
Negative economic impact of manipulation
Negative economic impact of dike raising
Loss of tax revenue from manipulation

Agricultural impacts

Impact of flooding on agriculture
Impact of drought on agriculture
Irrigation uses do not negatively impact other water uses
Loss of farmland from manipulation

Industrial impacts

Disruption of industry by flooding

Energy impacts

Impact of drought on power supply
Impact of manipulation on electricity production

Transportation/navigation impacts

Impact of drought on navigation
Impact of manipulation on navigation
Impact of flooding on transportation

Military impacts

Flood impact on military bases
Drought impact on military bases
Disruption of war industry by flood

Recreational impacts

Impact of flooding on recreation
Impact of drought on recreation

Population impacts

Impact of drought on water supply
Impact of flooding on community way of life
Impact of drought on community way of life
Impact of drought on population
Loss of human life from flooding
Loss of homes from flooding
Impact of drought on medical services

Engineering impacts

Flood impact on levees

Broad category – Other frames

Cost-benefit frames

Economic benefits outweigh costs
Economic costs outweigh benefits
Manipulation must be economically feasible
Manipulation is economically feasible
Need federal funds for manipulation
State will partially fund manipulation
Manipulation will pay for itself
Manipulation compensates for past sacrifices

Governance frames

Debate over agency control of project
Water control should go to Corps of Engineers

Conflict of interest in agency preparation of EIS

Law/treaty frames

Manipulation must comply with NEPA

Manipulation must comply with BWT

Manipulation will comply with NEPA

Manipulation will comply with BWT

Manipulation does not comply with NEPA

Congressional authorization needed for cross basin transfer

Public opinion frames

Strong support for manipulation

Public opposition to manipulation

Public opinion needs to be gauged

Scientific information frames

Criticism of lack of scientific information

Scientific assessments not in agreement

Drought projections inflated

Flood projections inflated