



Local governments want authority to address problems: The case of horizontal drilling and hydraulic fracturing in the United States



Terence J. Centner*, Genti Kostandini

Department of Agricultural and Applied Economics, 313 Conner Hall, The University of Georgia, Athens, GA 30602, USA

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ABSTRACT

Governments enact laws to protect their citizens. With the advent of hydraulic fracturing, local governments have asserted themselves by adopting laws delineating management practices to augment health and safety. Drilling firms inconvenienced by local laws espoused new state legislation to preempt time-consuming localized requirements. In Pennsylvania, the state legislature preempted local governance of fracturing activities in 2012, but a court subsequently ruled the state preemption provisions unconstitutional. An analysis of drilling activity before, during, and after the adoption of Pennsylvania's preemption suggests that local governance does not curtail drilling activity. The benefits of preemption need to be balanced with the democratic ideals represented by local governance and the possible need for additional management practices to reduce negative externalities.

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1. Introduction

The public's concern about health and environmental damages resulting from human activities has led legislative bodies to address some of the issues. In the United States, the federal government has enacted major legislation under which agencies can delegate authority to the U.S. states to administer environmental and public health regulations (Daley et al., 2007). In turn, grants of authority from state legislatures to local governments mean that three levels of regulatory requirements exist to protect people and the environment. Although U.S. state regulations address hydraulic fracturing used in unconventional hydrocarbon (oil and gas) extraction, many feel the regulations do not adequately respond to potential health and safety issues (Adgate et al., 2014; Burleson, 2013; Steinzor et al., 2012). State regulatory agencies have had to adjust their legal provisions to oversee technologies being used for unconventional hydrocarbon extraction (Spence, 2013). In fact, one expert describes the U.S. state regulation of hydrocarbon extraction as regulatory islands that are experimenting "blindly and in isolation to the detriment of their constituents and the nation as a whole" (Wiseman, 2014). Regulated firms are unhappy with the complexity of the regulatory requirements and have advanced proposals to eliminate government regulations at the local level.

With respect to land use and environmental issues, state legislatures in the United States have adopted laws on several topics that ban local regulation of the same topic (Table 1). State rules preempting local laws and ordinances (together referred to as local laws) are viewed as a method to reduce the redundancy of administrative and compliance costs (Gable and Meier, 2013). State preemption of local laws has responded to interest groups who successfully argued that numerous different local laws create unlevel playing fields that are inimical to business (Mowery et al., 2012).

However, state rules can be costly if they fail to account for localized conditions (Perino and Talavera, 2014). A rule needed for one geographic region of a state may not be appropriate for another region. If state rules are written to protect people and the environment from too many risks, they may become overly burdensome for areas where they are not needed. Conversely, if the rules are too lenient, the costs of injuries and damages will be excessive and detract from overall economic performance. For some situations, health, safety, and environmental problems can be more efficiently addressed by tying them to localized situations.

Furthermore, state preemption of local laws may be viewed as undemocratic. Democracy involves citizen involvement and state laws preempting local laws take away one of democracy's most fundamental tenants (Fisk and Oswald, 2008). In the United States, local governments adopted some of the earliest laws to protect people and minimize negative externalities: external health, safety, and environmental effects (Glicksman, 2006). By precluding local citizen involvement in matters of local concern, preemption denigrates the historic role of local governments in protecting their

* Corresponding author.

E-mail address: tcentner@uga.edu (T.J. Centner).

Table 1
Land use and environment topics for state preemption of local laws.

Topic	Example: Citation by statute or judicial decision	Further explanation
Agricultural nuisances	<i>Township of Franklin vs. den Hollander</i> (2002)	Centner (2006)
Farm structures	<i>Commonwealth vs. Richmond Township</i> (2010)	Carter (2007)
Forestry practices	Oregon Revised Statutes (2014; § 527.722)	Sullivan and Solomou, (2011)
Genetically engineered seed and seed use	Kansas Annotated Statutes (2013; § 2-1450) and Oklahoma Statutes (2014; tit. 2, § 8-26.1)	Endres (2008)
Hog farm laws	<i>Craig vs. County of Chatham</i> (2002)	Noel (2002)
Land application of sludge	Official Code of Georgia (2013; § 12-5-30.3) and <i>Franklin County vs. Fieldale Farms Corp.</i> (1998)	Griffith (2004)
Livestock care and handling	Iowa Code (2013; § 331.304A) and South Carolina Code Annotated (2013, § 47-4-160)	Springsteen (2009)
Livestock production	Iowa Code (2013; § 331.304A) and <i>Worth County Friends of Agriculture vs. Worth County</i> (2004)	Novak (2000)
Nutrient management for animal waste	Pennsylvania Consolidated Statutes (2013; tit. 3, § 519) and <i>Burkholder vs. Zoning Hearing Board of Richmond Township</i> (2006)	Centner and Alcorn (2015)
Production of farm products	Official Code of Georgia (2013, § 2-1-6)	Springsteen (2009)
Solar energy	Florida Statutes (2013; § 163.04) and North Carolina General Statutes (2013, § 153A-144)	Salkin (2012)
Water contamination	Wisconsin Statutes (2013; ch. 93.90) and <i>Adams vs. Wisconsin Livestock Facilities Siting Review Board</i> (2012)	Hansen (1999)
Wind energy	Delaware Code (2013; tit. 29, § 8060) and Revised Code of Washington (2013, § 80.50.110)	Rule (2011)

inhabitants from harmful activities and negative externalities. Preemption may also slacken shifts in social norms (Mowery et al., 2012; Rosen, 2008). By precluding local regulations, the public has less information about ideas to address potential damages. This restricts the ability of information being shared that would advance technologies in support of best practices (Burlinson, 2013). For public health and pollution issues, bans on local laws tend to prevent local communities from attaining benefits associated with reductions of contaminants (Mosher and Treffers, 2013; O'Connor et al., 2008).

A recent controversy involves the preemption of laws regulating activities accompanying hydraulic fracturing (fracking) for hydrocarbon production (Adair et al., 2012). Hydraulic fracturing employed in drilling for hydrocarbons involves toxic chemicals injected into the ground at high pressures to stimulate the release of hydrocarbons. Although fracturing has been used for many years in conventional (vertical) oil and gas wells to augment production (Wiseman, 2009), its use in unconventional (horizontal) wells to extract hydrocarbons from shales, coalbeds, and tight sands in new areas in the United States has alarmed some people (Furlow and Hays, 2011; Kiernan, 2012; U.S. EPA, 2014a). Due to concerns about risks and damages accompanying unconventional petroleum production, segments of the public have adopted the term “fracking” as a rallying point for opposing hydrocarbon extraction and for securing additional regulation to minimize risks.

State governments have enacted numerous laws and regulations overseeing fracturing activities (Spence, 2013; Wiseman, 2013). Yet, given the influence of the petroleum industry (Warner and Shapiro, 2013), state regulations may not adequately protect the public from all of the potential dangers that accompany shale gas extraction (Adgate et al., 2014; Colborn et al., 2014; Shonkoff et al., 2014; Steinzor et al., 2012). At the local level, some communities adopted zoning laws to preclude fracturing (In the Matter of Wallach vs. Town of Dryden, 2014) while others incorporated requirements that would act to reduce risks of harm (Frederick vs. North American Resources Company, 2002). The latter laws generally incorporate best management practices (BMPs) as mitigation measures to provide safer and more environmentally friendly fracturing operations to minimize undesirable impacts (U.S. Department of the Interior and the U.S. Department of Agriculture, 2007).

A database of recommended BMPs for hydrocarbon production has been publicized by the Intermountain Oil and Gas BMP Project operated by the University of Colorado Boulder Law School for reducing excessive pollution, noise, traffic, and dangers from equipment and chemicals that accompany fracturing activities (Getches-Wilkinson Center, 2013). Although many areas lack detailed local controls, including all areas in states that have pre-

empted local regulations, some local governments have adopted BMPs to accord greater protection to the environment and people's health (Table 2). The varied requirements adopted by local governments have irritated drilling firms raising concerns that the regulations could deter development. As a polluting industry, hydrocarbon production involves spatial competition in which drilling might forego an area due to perceived regulatory hurdles (Greenstone, 2002). U.S. state governments anxious to generate economic activities that employ people and generate tax revenues have been displeased with requirements imposed by local governments (Warner and Shapiro, 2013). The burdens were viewed by some state legislatures as inimical to the economic well-being of the state.

To counter individualized local laws that are burdensome to firms engaged in hydrocarbon production, state governments considered legislation that would preempt local laws. Table 3 summarizes state approaches to local laws over fracturing activities in major states where unconventional drilling may be used to extract hydrocarbons. One of the state legislatures that acted was Pennsylvania. The state's legislators decided that they were capable of regulating localized pollution problems and that local governments should no longer have the freedom to adopt laws regulating oil and gas operations that were already regulated by state environmental acts. Whether the state's provisions were adequate to protect people and the environment for localized situations was irrelevant. Rather, local governments in Pennsylvania lost the flexibility of adopting BMPs to address dangers and risks that were not covered by the state.

However, the Pennsylvania preemption provisions were challenged by local governments and others in the *Robinson Township vs. Commonwealth of Pennsylvania lawsuit* (2013). In finding parts of Pennsylvania's Act 13 to be unconstitutional, four justices of the state supreme court relied on a special constitutional provision: the state's Environmental Rights Amendment (Pennsylvania Constitution, 1968). Since a fifth justice found that the preemption provisions violated substantive due process by usurping local municipalities' duty to impose and enforce community planning, local governments were successful in having the judiciary invalidate the preemption provisions. Thus, because of the court's ruling, Pennsylvania's local governments were able to again enact local laws containing BMPs.

This paper uses the brief preemption period under Act 13 to analyze the issue whether the preemption of local governance has an impact on drilling and fracturing activities. An analysis of data reporting the drilling of new oil and gas wells before, during, and after state preemption suggests that local governance does not curtail drilling activities. Simultaneously, successes with agricultural best management practices and advantages of localized

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