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Prices or politics? The influence of markets and political party changes on oil and gas development in the United States

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ABSTRACT

This paper analyzes the influence of state and federal political party changes and market factors on the number of state oil and natural gas drilling permits issued. The findings, using a first-differenced empirical model for two samples, a 26-state sample, from 1990 to 2007, and a 19-state sample, from 1977 to 2007, indicate that the influence of political party changes is trumped by economic factors. Oil and natural gas prices are the main drivers of permitting changes, while the state and federal political party changes for the legislatures' and executive offices are consistently not significant.

> Republican: "If we are to have the resources we need to achieve energy independence, we simply must draw more American oil from American soil" (Republican National Committee, 2008).
> Democrat: "We must end the tyranny of oil in our time" (Democratic National Committee, 2008).

1. Introduction

Fossil fuel development, in particular oil and natural gas development are contentious issues in the United States. Homeowners who lack mineral rights have felt trampled as oil and natural gas wells sprouted up in their backyards for the benefit of the mineral rights owner, while states have benefited through job growth, increased tax revenues, and rising GDP. The development has become a major contributor to local economic growth in regions with resource reserves, but has been criticized by environmentalists and some local politicians who have felt that it compromised wilderness areas and the rights of surface owners. My paper delves into the conflict in an attempt to determine if the states' political parties have chosen sides in the development contest or whether it was simply economic and geologic factors at play in a market determined largely by resource prices.

The debate over how to meet the nation's energy demands and the role of domestic production in meeting these demands is entrenched in a perceived partisan divide. The conventional wisdom is that Republicans, motivated by their pro-business ideology, push for growth while Democrats, concerned about the environment, seek less development. In politics, party matters. It is a signal of a politician's stance on a variety of social and economic issues. The notion of pro-business Republicans resisting regulation and pro-regulation Democrats pushing for it is common across policy arenas. As prices for oil and natural gas resources increased through 2007, the rhetoric on both sides of the development debate heated up.

In the literature, the findings regarding political party vary. There is a significant literature arguing that political parties matter in a variety of political outcomes (Cox and McCubbins, 1994; Levitt and Snyder, 1995; Levy, 2004; Rohde, 1994), but there is also a literature that argues that the role of political parties is dominated by other political factors including individual ideology and the legislative committee system (Poole and Rosenthal, 1997; Shepsle and Weingast, 1987). The paper delves into the debate by including measures of political party for various salient political actors, including the leadership of the federal and state legislatures and executive offices.

I expect the saliency of the issue and the degree of divergence of the parties' ideologies to be key factors in determining if party influence will lead to quantifiable changes in outcomes. For the analysis, I will analyze a highly salient issue, oil and natural gas development, with a perceived strong ideological divide between parties. Given the platforms of the Republican and Democratic parties quoted above, one would expect pro oil and gas development policies under a Republican administration and reduced oil and gas development under a Democratic administration. In the analysis, I focus specifically on whether or not the political party of the executive and legislative leaders matters in determining the number of oil and natural gas drilling permits issued by each state's oil and gas commissions.[1]

[1] A permit is short for an application for a permit to drill (APD). See the Background section below for a discussion of the history and process of permitting.

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Several papers have examined the degree of influence that a political leader has on federal legislative and bureaucratic outcomes. One set of literature argues that bureaucrats have significant discretion in terms of bureaucratic outcomes (Niskanen, 1975) while another body of literature argues that elected officials have a dominant role in dictating the bureaucratic environment and political outcomes (Cropper et al., 1992; Ringquist, 1995; Shipan, 2004; Weingast and Moran, 1983; Wood, 1988; Wood and Waterman, 1991). This literature has provided analyses of the role of various federal bureaucracies, but has not provided an evaluation of the roles of political and bureaucratic influence in permitting at the state level. Gerber and Teske (2000) review the literature on state level political and bureaucratic analysis. They point out that while there have been some studies that specifically focused on state bureaucratic outcomes, Wood (1991), the literature at the state level is not as robust as it is at the federal level. My paper focuses on the role of federal and state elected political leadership and the influence that political party changes have on permitting changes through their influence on the overall political framework and does not directly measure the relationship between bureaucrats and elected political leaders.

The analysis focuses on drilling permits issued at the state level over the time period 1977 through 2007. The time period focuses on two periods of increased development, the 1980s and the years around 2006, which was a peak year for development. The time period under analysis provides a rich background in which to analyze permit changes. During the thirty year period prices have fluctuated significantly and the regulations regarding those prices, particularly for natural gas have evolved. The time frame captures the complexity of the oil and natural gas market, including booms and busts.

Table 1
Oil and natural gas resources by state.

Rank	State	Average proved natural gas reserves (Mmcf)	Rank	State	Average proved oil reserves (Mbls)
1	Texas	49,084.2	1	Texas	6817.4
2	Alaska	18,569.9	2	Alaska	6350.0
3	New Mexico	15,325.6	3	California	4098.9
4	Oklahoma	14,863.0	4	Oklahoma	772.9
5	Wyoming	12,641.0	5	Wyoming	733.6
6	Louisiana	10,861.9	6	Louisiana	701.3
7	Kansas	8353.3	7	New Mexico	666.5
9	Colorado	6830.0	8	Kansas	300.9
8	California	3149.4	9	North Dakota	258.6
10	Alabama	2881.5	10	Utah	235.4
11	West Virginia	2534.3	11	Colorado	232.3
12	Utah	2297.8	12	Montana	227.3
13	Michigan	1787.5	13	Michigan	125.0
14	Arkansas	1766.0	14	Illinois	122.7
15	Pennsylvania	1710.8	15	Florida	86.4
16	Virginia	1128.7	16	Arkansas	73.6
17	Kentucky	1098.9	17	Alabama	52.6
18	Montana	885.5	18	Kentucky	29.0
19	North Dakota	489.3	19	West Virginia	28.3
20	New York	291.5	20	Nebraska	27.3
23	Arizona	89.9	21	Arizona	26.3
24	South Dakota	89.9	22	South Dakota	26.3
21	Florida	77.1	23	Pennsylvania	24.2
22	Illinois	0.0	24	Indiana	19.8
25	Nebraska	0.0	25	Virginia	0.0
26	Indiana	0.0	26	New York	0.0

Note: Proved reserves are averaged over the time period from 1977 through 2007.

2. Background

Each state has a unique natural resource endowment, regulatory environment, and amount of resource development. To shed light on how the states may differentially contribute to the overall analysis, I provide a brief overview of the oil and gas resources for each of the 26 sample states in Table 1. While I expect that there will be some political influence on oil and gas development in all states, I believe that the role of politics will vary along with the variation in natural resource endowment. The broad sample allows for an examination of the role of political influence across disparate political and natural environments. To better understand the political environments in each state it is important to understand the oil and natural gas permitting process.

With the advent of significant oil and gas development, typically around the 1950s, states set up regulatory commissions charged with permitting oil and gas drilling within each state to address concerns over wasteful development practices. The mission of each commission is to promote responsible development and ensure the efficient use of resources. While the focus of the commissions is not primarily on environmental conservation, their mission statements address responsible development in their charters, which typically include a focus on public safety and environmental protection. In terms of state political influence, each commission is primarily accountable to its governor's office, which appoints board members and is influenced by the state's legislature through the approval of board members, budgeting, and legislation in regards to oil and gas development. The commissions are also indirectly influenced by the federal political climate because oil and gas development occurs on federal lands within states. The Bureau of Land Management (BLM) is largely responsible for managing this development. They are influenced by the President who appoints the BLM leadership and by the federal legislature through budgeting and applicable federal legislation.

For each oil or natural gas well drilled in a state, whether it is exploratory or development, on federal, state or private lands, the state's oil and gas commission requires a permit. The permit provides the producer with the ability to drill in the designated location abiding by any state restrictions regarding drilling methods. The permits typically require that drilling begin within 6 months to a year from the issue date and expire if not used. Each permit must go through an application and approval process. The application requires detailed information about the location and type of well to be drilled. The approval process is not time consuming and available data shows that it typically can be completed in five to thirty days.[2] There is a high degree of technical detail required, but since the permits are typically applied for by established oil and natural gas producers this is not normally a hurdle to development. In addition, there is usually a small application fee and a bond requirement to ensure that responsible drilling procedures are followed. Historically across all states, the commissions have acted as de facto rubber stamps for permitting. For example, Colorado has denied two permits in the last ten years while New Mexico has not denied a permit. Generally, the number of permits issued is approximately equivalent to the number requested.

To thoroughly understand the permitting process, a consideration of the different types of land ownership in each state is critical. In particular, it must be noted that oil and gas wells drilled on federal lands require a permit from the relevant federal agency, often the Bureau of Land Management (BLM) in addition to the permit from the state's oil and gas commission.[3] Commissions have a clear bureaucratic mission of permit approval, but this may be mandated in cases where the drilling is occurring on federal land.[4] Across all land types the penchant for permit approval at the commissions could be strongly influenced by the federal process of permit approval especially in cases where a large number of the overall permits issued in the state are issued on federal lands, dictating the mission of the commissions and rendering them as rubber-stamps for approval. It may also be the case

[2] Delays in permitting have recently increased permitting time in Colorado to almost 60 days, but in other states such as Wyoming and New Mexico approval can be received in as little as 5 days.

[3] For a complete discussion of the role of the BLM in oil and gas development, see Maguire (2010, Working Paper).

[4] There were no cases found where the federal government approved a permit on federal land, but the permit was denied by the state. The dominance of the federal permitting process could be at play.