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Fractured Promises or Flourishing Dreams?
Leaseholder Perceptions of "Fracking" in Northern Pennsylvania

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What is the Issue?

Recently, new oil and gas reserves in the U.S. Northeast's Marcellus shale region were unlocked through "high volume hydraulic fracturing" ("fracking") of subsurface rock. As technology evolved and prices increased, these resources became economically accessible, drawing industry to the region. Chesapeake Energy Corporation, one of the leading natural gas companies, initiated what they referred to as a "land grab" in a race to lock up access to the valuable resource. Other companies followed suit.

In the Northeast, mineral rights are typically owned by private landowners. To exploit the hydrocarbon resource, energy company "landmen" first had to negotiate terms with these landowners. The lease terms – royalty payments, drinking water protections, land reclamation responsibilities, etc. – varied by company, location, and timing. Many landowners were convinced to sign: some reluctantly, some eagerly, some early, some later. While few had prior experience with comparable negotiations, awareness grew rapidly. Industry boosters and critics soon predicted a transformative wave of energy development, destined to unfold in the communities and landscapes in which most lease signers lived.

The pace of leasing accelerated at first, but after reaching a peak in 2006-2008, prices collapsed. After the pace of "fracking" slowed and the story faded from the front pages, we remained interested in the experiences and perceptions of those directly affected. What did the landowners who signed leases think of their decision? Had money been their only consideration? What were the financial and environmental outcomes of leasing? Had they any inkling of what the future would hold? How aware were they of possible risks and gains? Most importantly, as they looked back over a decade of industry rise and fall, what did they think of what has actually happened?

Our Study

In 2016, we mailed questionnaires to 3,687 landowners in two of the most intensively drilled counties in Northern Pennsylvania, Bradford and Susquehanna. Our 873 responses yielded a 36% response rate (after accounting for non-deliverables). By design, our study represents only the experiences of property owners who leased rights to the gas beneath their land by signing with an energy company between 2003 and 2015. Our sample and responses were divided fairly evenly between the two counties, though the proportion from Susquehanna County was higher (56% v. 44% of responses; 52% v. 48% of sample). Most respondents are local or regional residents. The mailing addresses of 69% of the total sample of mineral rights owners (including non-respondents) were within the two counties, 17% were located elsewhere in Pennsylvania, and 14% were outside Pennsylvania, mostly in New York and New Jersey. 80% of respondents signed leases during the peak "land grab" period (2008-2010).

The responding property owners were older (average age of 65), with higher incomes and educations, than typical county residents. About half (52%) were retired and 40% had retired spouses/partners. Most (75%) were married and almost half (47%) had earned a college degree. Only 13% reported children at home. In the year before the lease was signed, 27% reported household incomes of less than $40,000, 50% earning between $40,000-100,000, and 23% earning $100,000 or more.

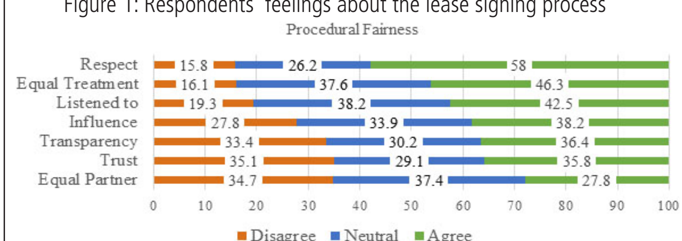
Natural gas was extracted from beneath the properties of 55% of the respondents. Nearly four of five respondents (78%) said natural gas had been extracted from neighboring properties. Due to the long reach of horizontal well technology, not all landowners had wells drilled on their own property. Many respondents signed leases disallowing any surface disturbance on their land. Many owned parcels that were part of larger drilling units but were too small for a surface well pad.

The Lease Signing Process

A majority of respondents (58%) felt that the company they signed with had treated them "with respect", while 16% disagreed (the remainder were 'neutral') (Figure 1). More respondents agreed than disagreed that the firm listened to their views (43% vs. 19%). Almost half (46%) agreed that they were treated the same as other signing landowners, while 16% disagreed. More than a third (38%) felt they had influence in the final lease agreement, while 28% felt otherwise. Respondents were split about the firm's transparency (36% agreed; 33% disagreed) or whether they could trust the firm to act in good faith (36% agreed; 35% disagreed). Only 28% reported feeling like an equal partner in the process, while 35% felt the opposite.

Three out of four (75%) stated that "environmental protection" was "very important" in their decision to lease. In comparison, 62% said royalty rates, or indeed any other concern, were "very important".

Figure 1: Respondents' feelings about the lease signing process



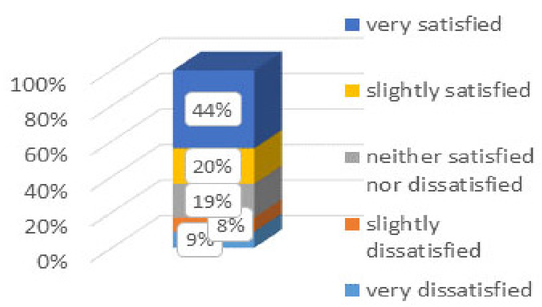
Satisfaction with Leasing Arrangements

Nearly two-thirds of landowners were slightly (20%) or very satisfied (44%) with their decision to lease (Figure 2). A much smaller proportion were slightly (8%) or very dissatisfied (9%). Susquehanna County landowners were more likely to feel "very satisfied" with their decision than were Bradford County landowners.

Revenues from leases include initial signing payments and, for wells in production, much larger royalties. For many responding landowners, total revenues received were substantial. A third (31%) had earned more than $100,000 as of the survey response date. Another third (31%) earned less than $10,000, and the remaining respondents (38%) earned between $10,000 and $100,000.

Higher revenues correspond to more favorable views of leasing arrangements. Respondents with revenues less than $10,000 were the least satisfied with their lease (26% "very" and 18% "slightly" satisfied), compared to the higher satisfaction cited by those who earned more than $250,000 (70% were "very" and 11% "slightly" satisfied). Less predictable, perhaps, was a similar relationship between higher revenues and expectations for the community. The highest earners were far more

Figure 2: How satisfied are you with your decision to lease your land for natural gas development?



likely (77% of those earning $250,000 or more) than those in the lowest earning group (43% of those earning less than $10,000) to express that the outcome for the "local area" had been better than expected. Future analysis will explore whether this is related to localized differences in revenues, differences in prior expectations, the effect of personal gain on perceived area gain, or something else.

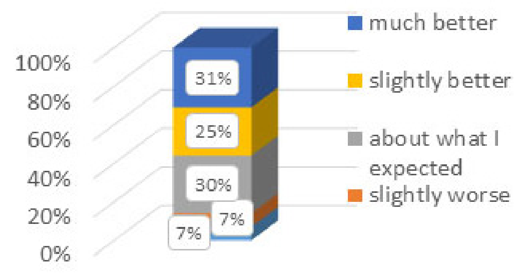
While respondents signed leases with almost 40 different companies, three companies accounted for nearly three-fourths of these leases (Chesapeake [44%], Cabot Oil and Gas [17%], and Fortuna/Talisman [11%]). Cabot's investments were overwhelmingly in Susquehanna County. Of the three companies, Chesapeake had the lowest number of respondents who were "very satisfied" with their leases (35%), and a relatively high proportion who were "slightly" (11%) or "very" (12%) dissatisfied. Over 50% of respondents who signed with Cabot, Fortuna, and "All Other" companies reported being "very satisfied". Signings with Chesapeake were concentrated in the peak "land grab" period (2008-2010). The relatively lower satisfaction with Chesapeake may reflect a public, high profile dispute involving the company over the fairness of their royalty payments.

Perceived Impacts of Natural Gas Development

On balance, was natural gas development better or worse for the local area than lease signers expected? Although we don't have a measure of initial expectations, we found that more than half the respondents (56%) felt that natural gas development had been better for their area than expected (Figure 3), 14% felt it had been worse, and 30% felt the impacts had been as expected. Landowners from Susquehanna County were more likely to view development impacts as better than expected.

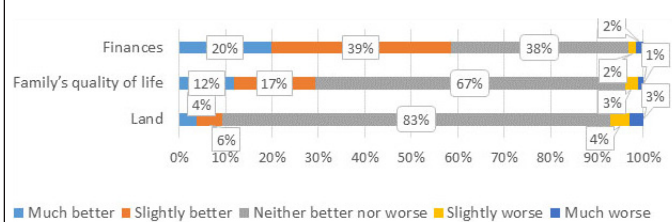
When asked whether other issues (surface water, drinking water, and relationships with community and family) had changed due to leasing decisions, 90% or more responded "neither better nor worse". Small numbers reported a decline in surface water (3%) or drinking water (4%)

Figure 3: Has natural gas development been better or worse for your local area than you expected?



quality. Among the few who reported changed family or community relationships, more cited improvements. More significant changes were noted for respondents' land, finances, and family quality of life (Figure 4). Ten percent indicated their land was better off, 7% reported worse. For family quality of life, 29% reported better, 4% worse. The difference was most significant for finances: 59% reported an improvement, while 3% reported a worsened financial situation as a result of leasing.

Figure 4: As a result of you leasing your land for natural gas development, please indicate whether any of the following are better or worse off.



Conclusions

This Brief examines landowners' reflections about their decisions to lease their land in two counties in the heart of Pennsylvania's Marcellus natural gas region. Most respondents were positive about their experiences, with many benefitting financially, some significantly. Although more sophisticated multivariate analyses are underway, basic tests confirm that lease satisfaction was strongly related to revenues received and whether household finances improved. The strongest predictor of satisfaction, however, was perceived procedural fairness. Nonetheless about one in five respondents did signal some dissatisfaction with their decision to lease. A small minority of respondents expressed acute regrets with their leases, with outcomes for the area, or with the impacts on their lives, relationships, land, water and property.

Perhaps most striking, however, is that strong majorities of landowners felt their lives had not changed dramatically. Instead of experiencing "transformative" change, our findings suggest that while the expansion of the 'fracking' industry has in fact transformed the lives of some landowners, the more typical experience is one of mild benefit or status quo. Future research should explore why such an incongruity exists.

[1] What if only the 78% of owners with reported drilling on or neighboring their property are included? The percentages cited in this section shift by only a few percent, some in the direction of "better" and others towards "worse".

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