



Original research article

Fee disbursements and the local acceptance of unconventional gas development: Insights from Pennsylvania[☆]

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ABSTRACT

This paper explores the extent to which local public support for an unconventional gas development (UGD) project is associated with public revenues disbursed to county and municipal governments where UGD occurs. Pennsylvania adopted “impact fees” in 2012, which have raised more than \$400 million for use by county and municipal governments that host UGD. We designed a public opinion survey (N = 453) that oversamples residents in UGD counties in Pennsylvania to test whether residents in counties and municipalities that received impact fees are more supportive of a hypothetical UGD project than residents in counties and municipalities that received less or no impact fee revenue. We found that impact fee revenue is positively associated with support for the UGD project. Further, the level of government receiving the funds (county versus municipality) is related to public support for UGD: impact fee revenue disbursed to municipal governments is associated with a higher rate of public support than comparable amounts disbursed to county governments, conditional on the respondent being aware of fracking prior to the survey. Our findings are consistent with the literature on public trust in local government and have implications for understanding the social feasibility of UGD in the United States and internationally.

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1. Introduction

While technical and commercial factors influence the market penetration of emerging energy technologies, it is critical to understand that local public attitudes are a key component of the “social license” to accept and support an emerging energy technology [58,21]. This analysis focuses on unconventional gas development (UGD) and the degree to which local public support for a hypothetical UGD project varies according to how revenues from the production are collected and then reinvested in county and municipal governments. We argue that reinvested revenues can, depending on how they are allocated, expand the constituency for the production activity. Internationally, the governments of the United Kingdom, Poland and China are looking into revenue reinvestment as part of their nascent UGD policies [20]. Since such countries do not authorize royalties for private land or mineral-rights owners, revenue reinvestment may have an even more significant role in generating public support in these countries than is the case in the United States.

In the last decade, UGD has contributed to a sharp increase in U.S. hydrocarbon production. The U.S. has recently become the world's largest producer of natural gas and petroleum, overtaking Russia and Saudi Arabia, respectively [12]. Pennsylvania is the fastest-growing natural gas producer in the U.S. From 2011 to 2012 alone, natural gas production grew 72% in the Keystone State [13].

Proponents of UGD argue that local communities are garnering significant economic benefits from the increase in production [20]. For example, from 2007 to 2011, per capita income in Pennsylvania counties with more than 200 wells rose 19% compared to eight percent in counties with no wells [57]. On the other hand, opponents of UGD point to a variety of local disadvantages: air pollution, water contamination and diminished quality of life in communities near UGD sites [31]. Also at the local level, there are concerns about traffic congestion due to the rapid increase in truck traffic and a perceived decline in property values due to the presence of an industrial-like activity in close vicinity to residential areas [35].

Some state legislators and public officials have responded to public concerns about UGD by reinvesting a portion of the revenue earned from development in public sector activities [36]. The most common approach is the severance tax, which imposes a tax on the value or volume of oil, gas, and other natural resources “severed” from the ground. The resulting funds are typically controlled by the state government but are sometimes allocated to local governments in areas where production is occurring [36]. At the county

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level, ad valorem (property) taxes are sometimes applied to mineral production, with revenues made available for public services in the county [36]. For example, a new law in Texas will give counties mineral rights for UGD drilling under county roads, and the revenues will go toward the upkeep of the county road system [18].

In 2012, Pennsylvania's former Governor Tom Corbett (R) signed into law Act 13, which introduced "impact fees"—fixed annual fees per producing well [49]. The law has allowed county and municipal governments to receive more than \$400 million of new state revenue in areas directly impacted by drilling [50]. In exchange for the revenues from the impact fee, Act 13 sought to restrict the ability of municipalities to use zoning ordinances to inhibit production while retaining the state as the sole regulator of UGD. The Supreme Court of Pennsylvania later overruled this provision [61].

The Pennsylvania Public Utility Commission (PUC) collects impact fees from producers and disburses ("reinvests") the revenues back to county and municipal governments in proximity to production on an annual basis. About \$22 million "off the top" of the total revenue is earmarked annually for state agencies to offset the statewide impact of drilling. Of the balance, 40% of the revenue is deposited into a state fund, called the "Marcellus Legacy Fund," to mitigate future problems stemming from improper closure or negative impacts of drilling. Roughly a third of revenue from the Marcellus Legacy Fund is allocated to various state agencies. The remaining amount is allocated to local governments in two ways that are not based on proximity to drilling and production activity: first, nearly half is allocated to each county in the state based on population – with each county receiving at least \$65,000 – to be used for highway and infrastructure projects and the rehabilitation of Greenways and Nature Areas. Second, the remaining half goes to the Commonwealth Financing Authority, which reviews competitive grant applications from counties and municipalities for various community and economic development projects [50]. The extent of drilling activity in a county or municipality is not included as a criterion in the consideration of grant recipients [42].¹

The focus of this analysis is the remaining 60% of impact fee disbursements that are distributed to county and/or municipal governments directly affected by UGD.

About three-quarters of these funds go to counties and municipalities that have producing wells and about a quarter goes to municipalities that do not have producing wells but are proximate to production, either by being contiguous to a municipality that has producing wells or within a county that has producing wells [50]. Table 1 lists the average amount of impact fee revenue received annually by each beneficiary along with their annual share of total impact fee revenue, which is about \$210 million.

The Pennsylvania impact fee system is designed to help those communities most affected by production by receiving a part of the revenue generated in their areas, an approach that departs from traditional severance taxes, which are usually deposited into a state general fund [36]. At the same time, some critics have raised concerns that the Pennsylvania impact fee system will leave a lot of potential public revenue off table due to its low effective tax rate [40]. An inter-state tax comparison by Pennsylvania's Independent Fiscal Office (IFO) found that the effective tax rate under impact fees is about 0.8%, among the lowest of natural gas producing states [19]. However, the IFO notes that it is difficult to generate an "apples to apples" comparison of state severance taxes because of the unique features of each state's tax code [48]. For example, the IFO fails to consider that some, but not all, Marcellus gas producers pay Pennsylvania's corporate income tax. It is the second highest corporate

income tax rate in the nation—9.99% [34]. Additionally, it is important to note that a low effective tax rate is a political choice and not a necessary or intrinsic aspect of the impact fee system.

Impact fees have become a major part of the political debate on whether to create a severance tax on produced oil and gas in Pennsylvania. Current Pennsylvania Governor Tom Wolf (D) outlined a severance tax proposal modeled after the one currently in place in West Virginia that would replace impact fees and move Pennsylvania from having the lowest effective tax rates to among the highest of natural gas producing states—7.3% [40]. Local communities that are receiving impact fees are highly engaged in advocacy efforts maintaining the revenue streams with any potential severance tax that might be enacted [64]. In response, the Governor's proposal would include \$225 million for localities directly impacted by drilling each year to offset the losses from the fee [51]. The bulk of the estimated \$1 billion annual revenue from the proposed severance tax would be reinvested in Pennsylvania's public school system, which has suffered from budget cuts for decades [46].

Republican legislators are concerned that the proposed severance tax combined with an already high corporate income tax rate may make development in Pennsylvania unattractive to businesses, especially since gas prices in Pennsylvania are currently so low [41]. However, Republicans in the legislature—which have strong majorities in both the House and Senate—are not ruling out a severance tax, and a looming budget deficit might force a compromise [46]. Further, New York's ban on fracking may undercut the argument that a severance tax will damage the industry, because the ban effectively takes out a strong competitor for Marcellus shale [47]. Additionally, a severance tax may become more attractive over time to political leaders and citizens who are currently benefiting from impact fee revenue, because impact fees have a depreciating fee schedule.²

The debate about whether and how to change the current system of collecting and allocating public revenue from UGD is also salient in Ohio, where the current effective severance tax rate is as low as that for Pennsylvania under the impact fee system—0.8% [19]. Additionally, Ohio's severance tax revenue is not designed to flow to localities where oil and gas production occurs, and is instead used to fund three state agencies: the Department of Natural Resources' Division of Oil and Gas Resources, the Oil and Gas Leasing Commission, and the Ohio Geological Survey (Ohio Revised Code 1509: Sections 1509.02, 1509.50, and 1509.09). Beginning in 2012, several statutes have been proposed in the Ohio state legislature to reform severance tax rates and revenue distribution. For example, the introduced version H.B. 59 would have increased the tax rate to one percent and four percent of market value of gas and oil, respectively, and would have been used to finance general tax relief. Am. Sub. H.B. 375, as passed by the House of Representatives, would have imposed a higher tax rate of 2.5% and allocated 17.5% of total revenue to reimburse local governments through the Local Government Fund to be used for infrastructure in areas that have actively producing horizontal wells and to create an endowment fund for local governments in these areas [43].

Assessing the association between impact fee disbursements and public support of UGD is important since a growing number of local communities in several states are attempting to exert local control over UGD by referenda or ballot propositions. Some of the votes that have been recorded in Colorado, New York, Ohio and Texas have been quite close [38]. For example, in the town of

¹ All analyses performed in this paper were also performed for Marcellus Legacy Fund allocations to county and municipal governments during the same time period, and these analyses generated null results.

² In the first year of the program, the fee for a producing well is \$50,000 and depreciates by \$10,000 each subsequent year remaining at \$20,000 per well in years 4–10. In years 11–20, the fee per well is \$10,000. Over the life of the well, the total impact fee is \$360,000 [50]. By contrast, the total tax paid over the life of a well in West Virginia (which has a 6.1% effective tax) is approximately \$900,000 [48].

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