

Study indicates economic benefits from Marcellus Shale, but questions remain

UNIVERSITY PARK, Pa. -- A new study examining the Marcellus Shale natural-gas boom in Pennsylvania suggests that, although development of this resource is having a positive economic impact in the state, the net benefits may be more modest than previously reported.

Summarized in a publication, "Economic Impacts of Marcellus Shale in Pennsylvania: Employment and Income in 2009," the study was conducted by the Marcellus Shale Education and Training Center, a partnership between Penn State Extension and the Pennsylvania College of Technology in Williamsport.

Timothy Kelsey, professor of agricultural economics in Penn State's College of Agricultural Sciences and a lead author of the publication, said the study looked at several aspects of Marcellus Shale natural-gas development in Pennsylvania that had not been considered in previous research and assessed how these factors affected the overall economic impact.

"For instance, we examined where leasing and royalty dollars actually are going and how they are being spent," Kelsey explained. "The economic impacts will be very different depending on how many dollars go to Pennsylvania households, to state and local governments, and to nonresidents.

"In addition, how many of those dollars are immediately spent by residents and how many are saved also will affect the impact, as will the proportion of wages being paid to out-of-state workers."

The study included surveys of landowners, local businesses and local government officials, as well as a GIS analysis of land-ownership patterns among Pennsylvania residents, nonresidents and the state. The researchers combined this information with industry spending data to estimate the spatial distribution of natural-gas-company spending over time. They then entered the data into economic-analysis software to model the state's economy and estimate multiplier effects.

The results suggest that in 2009, Marcellus Shale development supported between 23,385 and 23,884 jobs in the state and generated around \$3.1 billion in economic activity. This included about \$1.2 billion in labor income and nearly \$1.9 billion in added value.

"These results are about half the size of those estimated in previous Marcellus economic-impact studies," Kelsey said. "But this isn't surprising because we had more detailed information about leasing and royalty income. Our results confirm that where leasing and royalty dollars are going significantly influences the estimated overall impacts."

Kelsey explained that only about half of the land in counties with Marcellus activity is owned by residents within those counties. Twenty-five percent is owned by residents living elsewhere in

Pennsylvania, and nearly 8 percent is owned by out-of-state landowners. The remaining 17 percent is owned by the public sector, primarily the state.

"This would imply that a large portion of the economic benefits immediately leaves the communities being impacted by drilling," he said.

Similarly, the study looked at wages paid by the industry and where they are going. "A recent Marcellus workforce study indicated that about 37 percent of Marcellus workers are non-Pennsylvania residents," said Kelsey. "We estimated two alternative scenarios -- 25 percent and 50 percent -- for how much of the payroll going to non-Pennsylvanians is sent back to their home-state communities. We also accounted for how their spending likely differs from typical resident workers."

In addition, the study found that the amount of lease and royalty payments spent or saved affects the gas play's immediate impacts. The researchers surveyed landowners in Bradford and Tioga counties who live within 1,000 feet of active Marcellus wells. The results suggest that lease holders save or invest about 55 percent of leasing proceeds and about 66 percent of royalty payments in the year they are received, rather than spending them immediately.

"This means a significant portion of leasing and royalty dollars are not spent in Pennsylvania in the year received, reducing the potential economic impact in that year," Kelsey said.

The researchers also looked at the Marcellus boom's fiscal impacts on local governments. They found that the effects on municipal coffers so far are minimal.

All 494 municipal governments in 12 Marcellus counties were surveyed, with 293 responding. Only about 18 percent of governments experiencing Marcellus activity said their tax revenues had increased, and about 26 percent said costs had increased, especially related to road maintenance.

"To have a complete understanding of the impacts of gas-development, you have to consider both revenues and costs," Kelsey noted. "These findings contrast with previous economic studies that predicted large local tax impacts but did not verify what actually is occurring."

Local businesses in two counties surveyed as part of the study described positive impacts, according to the authors. About a third of all responding businesses in Bradford and Washington counties reported increased sales due to natural-gas development, and only 3 percent reported a sales decline.

"Businesses across the economy reported positive effects, though hotels, construction companies, transportation concerns, eating and drinking places, wholesalers and financial-services firms were most likely to report higher sales," Kelsey said.

The researchers did not try to quantify other important but difficult-to-measure costs of Marcellus development, such as effects on the environment and health. They said they hoped that

future studies can look at such issues as better information becomes available about their prevalence and extent.

"The long-run implications of Marcellus Shale development are still unknown," Kelsey emphasized. "We believe our results must be viewed as a preliminary, short-term view of the impacts of Marcellus Shale and should be placed in the broader context of these other important concerns."

The report is available online at the Marcellus Shale Education and Training Center website at [www.msetc.org](http://www.msetc.org), and at the Penn State Extension Marcellus Education Team website at [www.naturalgas.psu.edu](http://www.naturalgas.psu.edu).

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