

MARCELLUS EDUCATION FACT SHEET



Local Business Impacts of Marcellus Shale Development: The Experience in Bradford and Washington Counties, 2010

Many have speculated about how the development of Marcellus shale is affecting local economies and businesses in Pennsylvania communities. Some recent data from the Commonwealth indicate that such counties are typically experiencing faster employment growth and lower unemployment rates, but little objective information is available about the direct impacts on businesses themselves.

Marcellus shale-related gas development clearly has the ability to significantly affect locally owned and operated businesses across Pennsylvania. Anecdotes suggest that some businesses are enjoying increases in sales and expansion while others are experiencing hardships such as loss of employees to the new industry, but the representativeness and accuracy of these anecdotes have not been clear.

This fact sheet uses results from a fall 2010 survey of local businesses in Bradford and Washington Counties to examine how local businesses are being affected by Marcellus shale development. The survey results provide insights into what occurred in two of Pennsylvania's most active Marcellus shale counties during 2010 and what other counties could experience as drilling activity increases.

About the Counties

Bradford County is located along the New York border in northeast Pennsylvania. The U.S. Census estimated its population at 60,384 residents in 2009, with approximately 28,855 of these residents being of working age. It is a predominantly rural county with significant forests and farmland. Its agriculture is an important part of the local and state economy, and in 2007 it was ranked as the tenth largest farm county (measured by sales) in Pennsylvania. In 2008, 1,345 businesses were located in the county. Bradford County has seen the most Marcellus drilling activity of any Pennsylvania county through the end of 2010. The Commonwealth reports that 482 wells have been drilled since 2008, with 355 in 2010 alone. Drilling activity, traffic, and workers are very evident in the county, particularly because of its relatively low population.

Washington County is in southwest Pennsylvania, just south of Pittsburgh. It is a much larger, more urban county than Bradford, with an estimated 200,505 residents in 2009, with 102,829 being of working age. The county includes farms and forestland but has many more urban and suburban areas. Washington County had 5,082 businesses in 2008. A total of 305 Marcellus wells have been drilled in the county

In cooperation with the Marcellus Shale Education and Training Center

PENNSTATE



COLLEGE OF AGRICULTURAL SCIENCES
COOPERATIVE EXTENSION

since 2008 (135 in 2010), the third largest number of any Pennsylvania county. Drilling is evident, but the larger population and greater number of businesses mean the activity is generally less obvious than in Bradford County.

Methods

One thousand businesses were randomly selected from both Washington and Bradford County using a commercially available list of active businesses having an office or location physically within the county. The sample included all tourism-related businesses identified by Standard Industrial Classification (SIC) codes to allow for examining impacts on tourism. This included 27 businesses from Bradford County and 98 from Washington County. The possible bias of this oversampling was considered during the analysis.

The paper survey was mailed to business owners or local branch managers during October 2010, and two follow-up reminders were sent to nonresponders. Responses were received from 619 businesses, for a response rate of 31 percent. This included 360 responses from Bradford County (36 percent) and 259 from Washington County (26 percent). Surveys were returned from 82 people who said they did not own or manage the business; their answers were dropped from the analysis. Even with the oversampling of tourism-related businesses, the overall responses were generally consistent with the actual business composition of each county's economy, so they are representative of actual conditions.

Business Effects of Natural Gas Activity

About 9 percent of the businesses said their activities were directly related to natural gas drilling or development in Pennsylvania (Table 1). The majority of these firms were newer (in operation less than 10 years) and larger (grossing over \$250,000 in 2010) than the typical businesses in the county. About 22 percent of Bradford County and 9 percent of Washington County businesses reported change due to natural gas drilling.

One-third of all the Bradford County businesses said that their sales have increased due to drilling activity, and only 3 percent reported that sales had declined. About 23 percent of the Washington County businesses reported increased sales, and only 2 percent reported decreased sales. Contrary to some anecdotes, more firms reported that the number of their nongas customers has increased (10 percent of businesses in Bradford County and 3 percent Washington County) than decreased (3 percent and 2 percent, respectively).

Effects on Worker Retention and Hiring

About 90 percent of the businesses reported that natural gas drilling activities have not changed their

number of employees (Table 2). The majority of those reporting a change said that they have more employees due to natural gas development. A similar percentage (91 percent) reported that their ability to find and hire qualified employees has not changed, though this varied by county. About 13 percent of the Bradford County businesses reported issues with finding and hiring employees, compared to only 2 percent in Washington County. The majority of such businesses said that finding and hiring employees was either "somewhat more difficult" or "much more difficult" due to natural gas development. About 9 percent of the Bradford County businesses reported that employee turnover has increased due to Marcellus shale development.

Table 1. Changes in business activity.

	<i>Percent (number) responding "yes"</i>		
	<i>All responses</i>	<i>Bradford County</i>	<i>Washington County</i>
Is your current business activity directly related to natural gas drilling or development?	9 (48)	9 (27)	10 (21)
Have your business activities changed due to natural gas drilling?	17 (89)	22 (70)	9 (19)
Have your annual sales changed due to natural gas drilling?	31 (160)	35 (108)	25 (52)
Sales increased	28 (147)	32 (100)	23 (47)
Sales decreased	3 (13)	3 (8)	2 (5)
Has the number of your regular customers (e.g., nongas customers) changed due to natural gas drilling activities?	10 (52)	13 (41)	5 (11)
Number of nongas customers increased	7 (38)	10 (31)	3 (7)
Number of nongas customers decreased	3 (14)	3 (10)	2 (4)

Table 2. Effects on worker retention and hiring.

	<i>Percent (number) responding "yes"</i>		
	<i>All responses</i>	<i>Bradford County</i>	<i>Washington County</i>
Have natural gas drilling activities changed the number of employees in your business?	10 (50)	8 (40)	2 (10)
Number of employees increased	8 (39)	6 (32)	1 (7)
Number of employees decreased	2 (11)	2 (8)	1 (3)
Have natural gas drilling activities affected the ability of your business to find and hire qualified employees?	9 (44)	13 (39)	2 (5)
Somewhat easier to find	0.4 (2)	1 (2)	—
Somewhat more difficult to find	5 (23)	7 (20)	1 (3)
Much more difficult to find	4 (19)	6 (17)	1 (2)
Have natural gas drilling activities affected your ability to retain your workforce?	6 (30)	9 (27)	1 (3)
Turnover increased	5 (28)	9 (26)	1 (2)
Turnover decreased	0.4 (2)	0.3 (1)	0.5 (1)

Differences among Types of Businesses

As expected, differences existed among the types of businesses. Eighty percent of the hotels and campgrounds in Bradford County reported that their business activity has changed due to natural gas drilling, and 100 percent reported higher sales. Construction (35 percent), transportation (30 percent), eating and drinking places (29 percent), and wholesale trade and financial services firms (both 28 percent) in Bradford County similarly were more likely to report changes in business activity than were other business types (Table 3). Half of the financial businesses in Bradford County reported higher sales due to natural gas activity, as did 44 percent of retail trade, 38 percent of eating and drinking places, and 33 percent of wholesale trade and business services establishments. Hotels and campgrounds (25 percent), wholesale trade (22 percent), and construction firms (17 percent) in Bradford County were more likely to report higher turnover as a result of drilling activity than were other businesses. The increases in business activity, sales, and turnover were somewhat lower in Washington County, likely due to the difference in the size of its economy.

There was little apparent pattern to which business types reported declining sales or loss of customers—with the exception of retail trade and

financial firms in Bradford County, at most only one firm in each business category reported declining sales or loss of regular customers. Only two firms in the retail trade and financial sector reported declining sales (4 percent and 8 percent of those firm types, respectively), and three financial services firms (12 percent) reported loss of regular customers. Three manufacturing firms in Bradford County (11 percent of manufacturers) reported that the number of their employees has decreased due to drilling activity.

Several types of firms in Bradford County were most likely to report increases in nongas customers, including 40 percent of hotels and campgrounds, 20 percent of financial services firms, and 16 percent of eating and drinking places. The number of employees increased in 75 percent of the Bradford County hotels and campgrounds, 24 percent of eating and drinking places, 22 percent of wholesale firms, and 14 percent of construction companies.

Tourism Destination Businesses

Much of the concern about possible negative impacts of Marcellus shale development relates to tourism destination businesses, such as tour operators, souvenir stores, tourist attractions, and related retail stores, including bike shops and sporting goods (particularly related to hunting). About 5 percent of all the survey responses were from such tour-

ism destination businesses. Response rates from these types of businesses were 33 percent (9 businesses) in Bradford County and 22 percent (21 businesses) in Washington County.

About 29 percent of these tourism-related businesses said that their sales have increased due to natural gas drilling activity, while the other 71 percent reported that their sales had not changed. None of the tourism-related businesses reported a decrease in sales. Sporting goods and bicycle shops were the most likely to report sales increases. Of those tourism-related businesses experiencing increased annual sales, the majority reported that the gas industry sought out the goods/services their businesses offer. None of the businesses reported difficulties in retaining or finding employees.

Implications

The survey results of businesses in Bradford and Washington Counties are a useful indication of how the early stages of Marcellus shale development is affecting local economies in Pennsylvania. Both counties have had more drilling activity than most other counties in the Commonwealth and their experience likely foreshadows what could occur in other counties as drilling activity increases.

The results suggest that activity related to Marcellus shale is having positive impacts, including

Table 3. Changes by type of business.

Business type	Have your business activities changed due to natural gas drilling?		Have your annual sales increased due to natural gas drilling?		Have natural gas drilling activities increased worker turnover?	
	Percent (number) saying "yes"		Percent (number) saying "yes"		Percent (number) saying "yes"	
	Bradford County	Washington County	Bradford County	Washington County	Bradford County	Washington County
Agriculture, Forestry, Fishing	9 (2)	0	9 (2)	23 (3)	5 (1)	0
Mining	—	50 (1)	—	0	—	0
Construction	35 (8)	16 (3)	27 (6)	15 (3)	17 (4)	0
Manufacturing	11 (3)	8 (1)	25 (7)	33 (4)	12 (3)	0
Transportation, Communications, Utilities	30 (3)	0	22 (2)	0	11 (1)	0
Wholesale Trade	28 (5)	20 (2)	33 (6)	50 (5)	22 (4)	0
Retail Trade	25 (13)	8 (3)	44 (23)	28 (11)	10 (5)	0
Financial, Insurance, Real Estate	28 (7)	10 (1)	50 (12)	40 (4)	0	0
Business Services	20 (10)	6 (3)	33 (16)	16 (8)	4 (2)	0
Professional Services	15 (9)	9 (4)	23 (13)	16 (7)	3 (2)	2 (1)
Eating and Drinking Places	29 (6)	0	38 (8)	33 (1)	14 (3)	33 (1)
Hotels and Campgrounds	80 (4)	50 (1)	100 (5)	50 (1)	25 (1)	0

increased sales, new customers, and higher employment, on many businesses within the counties where drilling is occurring. At the same time, some businesses are reporting more difficulties in retaining their workforce and finding new employees. Although the number of responses was relatively small, the data also suggest that tourism destination businesses so far are not suffering negative effects from Marcellus shale development.

Of particular interest are differences between Bradford and Washington Counties. Businesses in Bradford County were more likely to report impacts related to Marcellus shale development than were the businesses in Washington County. Drilling activity in Bradford County has been more intensive than in Washington County (482 wells since 2008, compared to 305 wells in Washington County), which probably explains some of this difference. Likely of greater importance is the relative size and resulting local economies of the two counties—Bradford County's population is only 30 percent that of Washington County and has 74 percent fewer businesses. The different results suggest that the size of the "host" county is an important factor affecting the scope and visibility of the impact on businesses due to natural gas drilling. The relative impacts will likely be greater in smaller counties, yet this also means greater risk of a "bust" when drilling activity slows.

Because of the relatively small number of responses from some types of businesses, the differences among business types should be viewed with caution. A larger number of responses in each category would give stronger results, yet the numbers from this survey are consistent with most of the anecdotes about business activity and should be useful as a general indication of the types of businesses requiring more careful study.

It is important to recognize that this survey was done relatively early in the development process of natural gas and that the impacts on businesses may change over time

due to the cumulative effects of drilling. The long-term impact on tourism, for example, is unknown from these responses since additional new well pads, pipelines, and access roads have the potential to change the community enough to affect tourism. But in the short run, the survey results suggest sales by tourism businesses have remained steady or increased. It is also important to recognize that higher local business sales do not directly affect local tax collections by counties or most municipalities or school districts. As with other aspects of Marcellus shale development, this study does not change the need for continuous, long-term monitoring of how natural gas development is affecting businesses, residents, communities, and the environment and for proactive policies to nurture the benefits while minimizing risks and costs.

References

Pennsylvania Department of Environmental Protection. "2010 Wells Drilled By County as of 02/11/2011." www.dep.state.pa.us/dep/deputate/minres/oilgas/2010%20Wells%20Drilled%20by%20County.htm.

U.S. Census Bureau. *American Community Survey: Five-Year Estimates (2005–2009)*. Released December 2010.

U.S. Census Bureau. *County Business Patterns: 2008*. Released July 2010.

U.S. Department of Agriculture. *2007 Census of Agriculture*. Released February 2009 and updated December 2009.

Written by Melissa M. Ward, graduate student, and Timothy W. Kelsey, professor of agricultural economics, Penn State, with Tracy Brundage (Penn College), Jim Ladlee (Penn State), Jeff Lorton (Penn College), Larry Michael (Penn College), and Tom Murphy (Penn State)

This survey was part of a larger economic impact study being conducted by the Marcellus Shale Center for Education and Training, which is a partnership of the Penn College of Technology and Penn State Extension. The project was partially funded by the Pennsylvania Department of Community and Economic Development. .

Put Our Experience to Work for Your Community

The Penn State Cooperative Extension Marcellus Education Team strives to bring you accurate, up-to-date information on natural gas exploration and drilling in Pennsylvania. Learn about your rights and choices as a landowner, a businessperson, a local official, or a concerned citizen. Discover the resources available to you.

Visit naturalgas.psu.edu.

Penn State Cooperative Extension

Penn State Cooperative Extension has a special mission—to enable individuals, families, communities, agriculture, businesses, industries, and organizations to make informed decisions. Through a system of county-based offices, we extend technical expertise and practical, how-to education based on land-grant university research to help Pennsylvanians address important issues, solve problems, and create a better quality of life. From improving agriculture and building stronger communities, to developing skills with today's youth, we are dedicated to giving Pennsylvanians the means to grow, achieve, compete, go farther, and do more. Learn what extension can do for you. Contact your county cooperative extension office or visit www.extension.psu.edu.

The Agricultural Law Resource and Reference Center

The Agricultural Law Resource and Reference Center is a collaboration between Penn State's Dickinson School of Law and Penn State's College of Agricultural Sciences. Located at both the University Park and Carlisle facilities and funded in part by the Pennsylvania Department of Agriculture, the center is designed to provide the highest-quality educational programs, information, and materials to those involved or interested in agricultural law and policy.

An OUTREACH program of the College of Agricultural Sciences

Penn State College of Agricultural Sciences research and cooperative extension programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

Visit Penn State Extension on the web: extension.psu.edu

This publication is available from the Publications Distribution Center, The Pennsylvania State University, 112 Agricultural Administration Building, University Park, PA 16802. For information, telephone 814-865-6713.

This publication is available in alternative media on request.

Penn State is committed to affirmative action, equal opportunity, and the diversity of its workforce.

Produced by Ag Communications and Marketing

© The Pennsylvania State University 2011

CODE#EE0005 xM04/11mpc 4937