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LOCAL AND NON-LOCAL EMPLOYMENT ASSOCIATED WITH MARCELLUS SHALE DEVELOPMENT IN PENNSYLVANIA

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SUMMARY

Much interest in Marcellus shale development in Pennsylvania is due to potential employment effects. Data from employers shows modest increases in counties with drilling activity. Residents' tax return data, however, suggest many of these new jobs are going to non-residents, leaving minimal employment impact on residents. This suggests local residents and communities reap little employment benefit to compensate for costs associated with such development, and may be an argument for levying severance taxes or impact fees which direct resources back into these communities, ensuring local residents receive benefits commensurate with the costs and inconveniences they are experiencing.

INTRODUCTION

The impacts of Marcellus Shale development in Pennsylvania are numerous and are the subject of many recent research studies. One of the more anticipated impacts of the development activity has been the creation of jobs, such as with the major gas companies, subcontractors, and local businesses. Yet there has been much concern over whether job opportunities benefit residents of counties with wells. Much of the work done by large national or multinational corporations and many of the jobs required are highly specialized, raising concerns that perhaps more non-residents than residents are benefitting from the work.

Shale gas development requires specialized management, equipment, and tasks, and is largely conducted at a regional level across the Commonwealth, with equipment and crews frequently shifting between work locations. Many of the businesses involved

in the development are regional, national, or multinational companies, with little formal footprint where drilling is occurring. Some of the specialized employees work across multiple counties and states, meaning they may only temporarily work within an individual county rather than becoming a resident. The result is that much of the industry spending on Marcellus shale development does not occur within the counties with wells.

EMPLOYMENT ESTIMATES

How much of the economic benefit of gas drilling actually stays local is important because the communities where drilling is occurring are most directly bearing the known costs of that development; also there are unknown costs that may be associated with decommissioned wells in the future. For residents living near wells, the impacts statewide are less relevant than what is occurring locally. Gas development creates social, environmental, and economic challenges for host communities, in part due to the influx of new workers, increase in truck and other traffic, increasing demands for services, and large use of water and other natural resources. Identifying local impacts is critical to understanding the implications of natural gas development for communities where drilling is occurring.

In the short run, shale development may have a direct impact on employment through the creation of jobs within the natural gas industry, and may have spillovers on employment within support industries due to increased business and worker spending. Kelsey et al. estimate that the Marcellus shale development created between 20,000 and 23,000 total jobs in Pennsylvania (2011), findings consistent with other studies (Weinstein & Partridge, 2011; Herzenburg, 2011; and Brundage, et at., 2011). However, these studies used techniques to estimate the impact across all of Pennsylvania, not the employment impacts on individual counties.

Because the Marcellus Shale play is still in its early phases, the long run implications for the communities are unknown. Research on resource-based economic development in other states suggests that communities focused on resource extraction, like gas and oil development, in the long run may not grow as fast as other types of communities. Called the 'Resource Curse,' such underperformance has been measured at the local and regional levels (James and Aadland, 2010).

LOCAL EMPLOYMENT

Most prior analysis of employment changes related to Marcellus shale development relied on federal data sources, which use information collected from employers, and reflect the employment and wages being paid in the counties where the employers operate. Such data is important for understanding the level of economic activity at the county level, and changes over time. By itself, however, employer-based data cannot address the extent to which such changes are affecting local residents, since the employer data disregards the residence of the workers being paid; in other words, there is no way to determine from such data how employment and wage changes may be affecting local residents (versus affecting commuters, or non-residents temporarily living in the community). The Pennsylvania Department of Revenue, in contrast, annually releases data directly reflecting changes in resident income and employment. Because Pennsylvania residents file their income taxes based upon their county of residence, rather than where they work, the data provides a clearer perspective on how the employment and income status of residents in Marcellus shale counties is changing with the activity.

The federal data, collected from employers, suggests that the presence of Marcellus activity within a county has had a modest impact on employment. On average, for example, counties without Marcellus wells experienced a decrease in employment of 8.6 percent between 2007 and 2011 as reported by the BEA, but high Marcellus activity counties experienced an average increase of 1.8 percent in employment during this time (see Table 1). Employment change patterns reported by the BLS and County Business Patterns are similar.

Table 1. Average Change in Total Employment by Level of Drilling Activity, 2007 to 2011

Level of Marcellus Activity	Percent Change in Employment by Data Source			
	U.S. Bureau of Economic Analysis	U.S. Bureau of Labor Statistics	County Business Patterns	PA Dept. of Revenue
High Marcellus Activity	1.8%	1.4%	0.8%	-1.1%
Moderate Marcellus Activity	-0.2%	-3%	-6%	-1.3%
Little Marcellus Activity	-2.1%	-2.1%	-1.5%	-3.4%
No Marcellus Wells	-8.6%	-3.7%	-3.4%	-0.8%
PA Average at the County Level	*-0.7%*	*-2.3%*	*-1.8%*	*-1.4%*

Data sources: U.S. Bureau of Economic Analysis CA25N; U.S. Bureau of Labor Statistics QCEW; U.S. Census Bureau County Business Patterns; PA Department of Revenue Personal Income Tax Statistics; PA DEP

"Many of the new jobs reported by employers are going to non-residents."

The Department of Revenue data reflecting what residents of these counties themselves reported show a much more modest impact in high Marcellus shale activity counties. Employment by residents within the High Marcellus Activity counties declined an average 1.1 percent during the study period, compared to an average 0.8 percent decline within the counties without Marcellus wells (see Table 1). Employment changes within the individual counties with high Marcellus activity showed much variation, however, with some reporting employment gains even though the average was negative.

CONCLUSION AND IMPLICATIONS

The federal employment data suggests that Marcellus shale development is having positive effects on employment in the Pennsylvania counties with drilling activity, at least in the short run. The tax return data from county residents, however, shows that the number of local residents who reported employment income decreased during the study period, suggesting that many of the new jobs reported by employers are going to non-residents of the affected counties. The data suggest that the employment impact on county residents is modest at best. A large portion of the employment increase observed in Marcellus counties is actually a reflection of increased commuters, either from other Pennsylvania counties or from outside of Pennsylvania altogether. It is likely that the commuter workers spend a large portion of their earnings in the communities in which they reside, therefore the true local economic benefit of the Marcellus activity is likely much smaller than if local residents were able to benefit from the new jobs.

It is important to note that the analysis does not control for other factors that may affect employment in these communities, such as the size and diversity of the county's economy, and the labor force. It does represent broad measures of change at a basic, yet easily understood level.

The implications of this inequality of the distribution of employment impacts are great. The anticipation of job growth as a result of the shale development has offset much of the public concern over potential negative impacts; however, if the job growth is having minimal benefit to local residents, then local residents and communities are left bearing most of the costs associated with development and reaping relatively little employment benefit to compensate. The long run implications of the Resource Curse, as experienced with past resource-based economic development, exacerbate this dynamic because it suggests that even many of the short term economic benefits of such activity are going elsewhere, rather than contributing to the communities with shale gas development. Such inequities may be an argument for levying severance taxes or impact fees which direct resources back into these communities, ensuring local residents receive benefits commensurate with the costs and inconveniences they are experiencing.

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