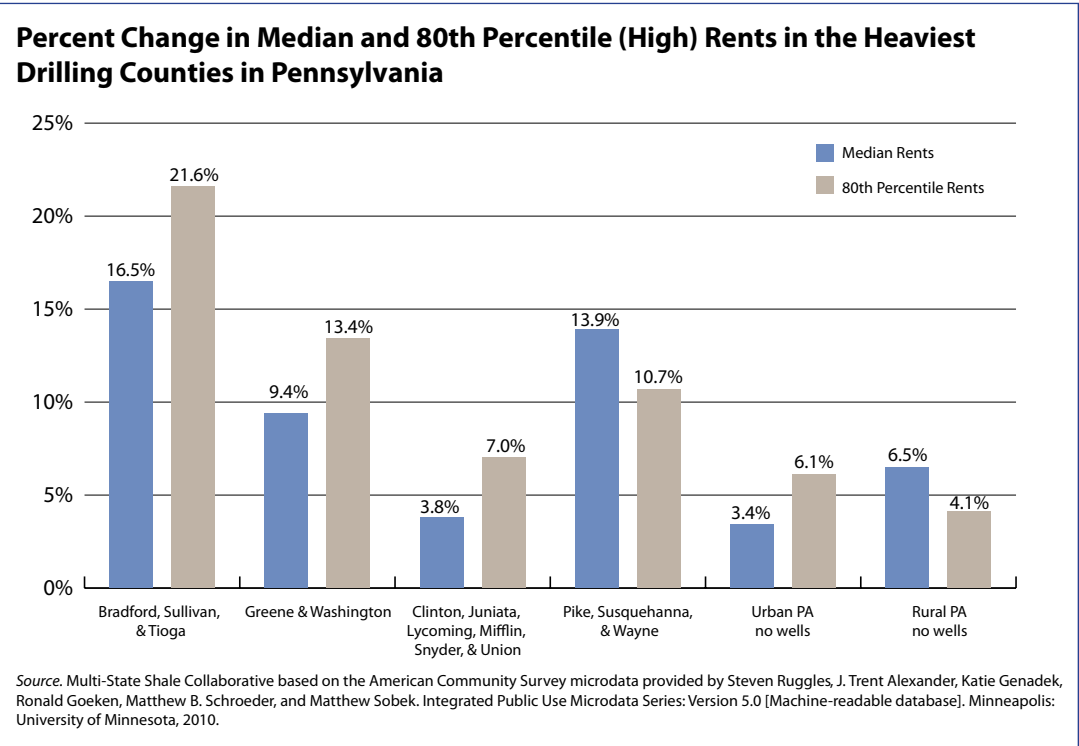


increase in households seeking help with housing. Tioga County also reported a four-fold increase in the share of Head Start families who were homeless. Similarly, Greene County saw a jump in the number of children in foster care because of "inadequate housing," from 12 in 2008-09 to 36 in 2012-13.

In Greene County, a local domestic violence organization reported that some clients have found it more difficult to leave abusive situations because of the lack of affordable housing.

Figure 14 shows the changes in median and high rents for four regions that include one or more high-drilling counties and also include no-drilling rural areas. The figure shows clearly that rents have increased much more in regions that include high-drilling counties, especially high rents.



Boom to Bust

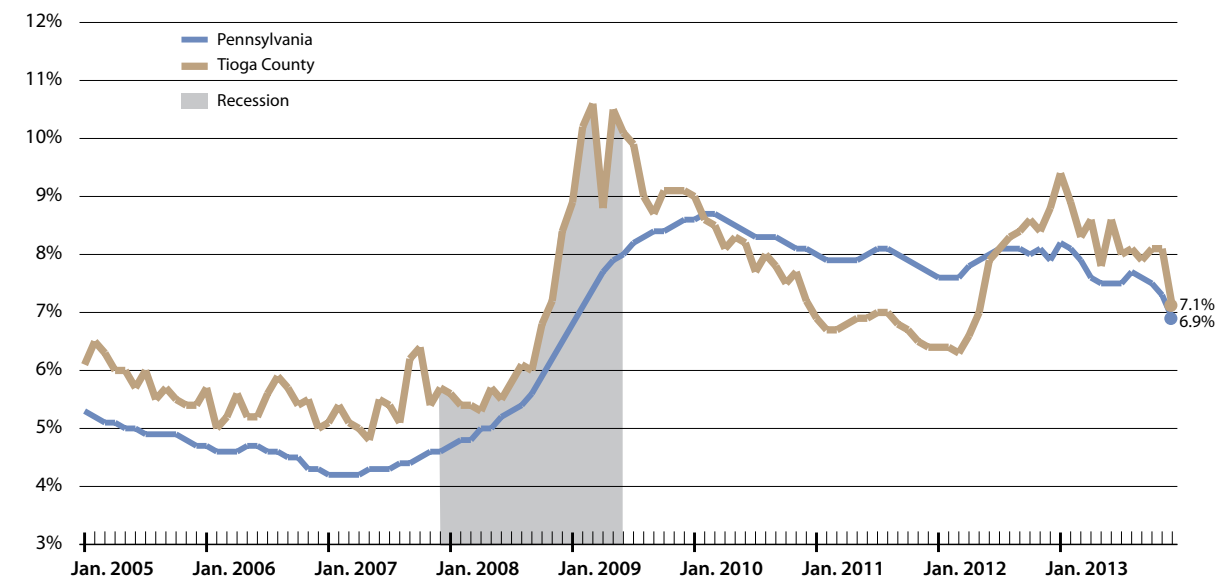
The number of new wells drilled in Tioga County plunged by 55 percent from 2011 to 2012 and decreased further in 2013 because of falling prices for natural gas. Employment in the county followed the drilling activity. Between 2010-11 the unemployment rate in the county was below the state average. However, since 2012 it has been above the state average once again.

Shale boomtown trade-offs

The Upside. The case studies and our statistical analysis of employment and income benefits of shale development in high-drilling counties, especially in Greene County, Pennsylvania.

The Downside. The high-drilling counties experienced higher rates of crime, STDs, and traffic fatalities, and less affordable housing. Boomtown communities are ill-prepared for busts.

Figure 1. Unemployment in Tioga County and Pennsylvania 2005-2013

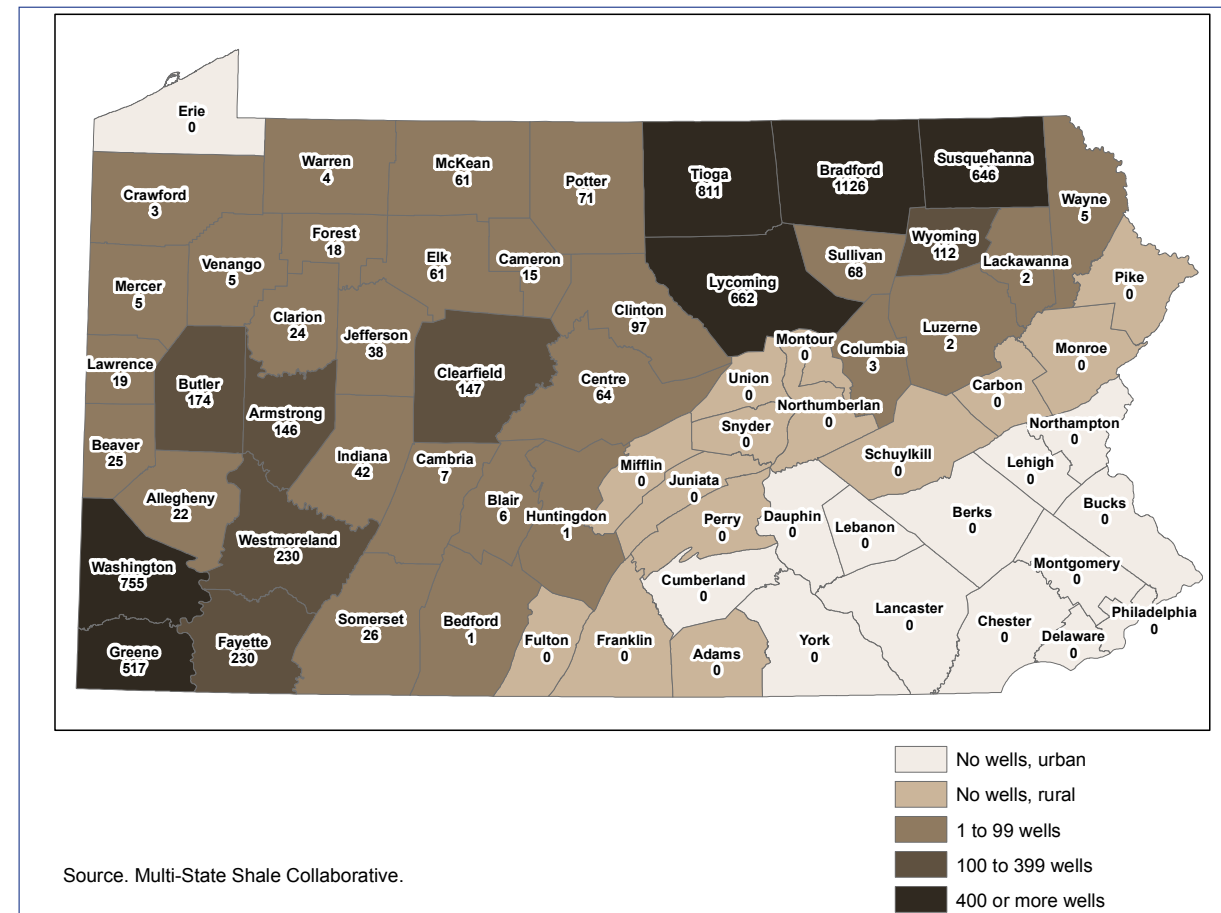


Shale Boomtowns: The Social and Economic Impacts of Gas Drilling¹



The Multi-State Shale Research Collaborative monitors employment trends, tax policy, economic development, and the community impacts of energy extraction in the Marcellus and Utica Shale. As part of this effort, the Collaborative conducts in-depth research and interviews in order to produce trend analyses, policy recommendations, and other resources that will help local officials, community leaders, the media, and members of the public better understand what needs to be done to address the local impacts of drilling.

The research offers clear evidence that a high concentration of drilling over a relatively short period of time is a recipe for significant, multiple impacts.



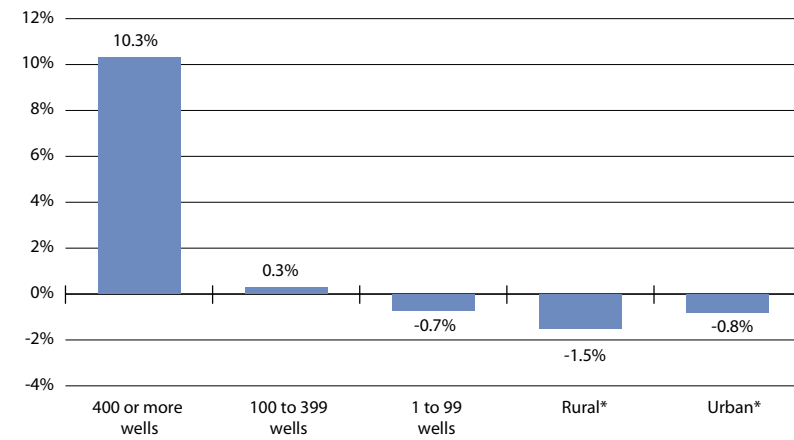
The research focuses on six "high-activity" Pennsylvania counties (Bradford, Tioga, Washington, Lycoming, Susquehanna, and Greene) – shown in dark brown on the map above– that account for more than half (52%) of the wells drilled. In each of these six counties, at least 517 wells have been drilled since 2002.

Employment

Drilling has had a modest impact on employment in Pennsylvania. Drilling-related jobs make up only 0.4 percent of all jobs in Pennsylvania. The bulk of the employment gains are in the six high-drilling counties. Drilling-related jobs rose by 138% (7,121 jobs) from 2005 to 2012, while total employment (across all industries) grew by 10.3% or 18,932 jobs.

¹ The Multi-State Shale Research Collaborative brings together independent, nonpartisan research and policy organizations in New York, Ohio, Pennsylvania, Virginia, and West Virginia to monitor employment trends, tax policy, economic development, and the community impacts of energy extraction in the Marcellus and Utica Shale. Member organizations include the Fiscal Policy Institute (New York), Policy Matters Ohio, Keystone Research Center/Pennsylvania Budget and Policy Center, Commonwealth Institute for Fiscal Analysis (Virginia), and West Virginia Center on Budget and Policy. <http://www.multistateshale.org/research>

The bulk of employment impacts were in six high-drilling counties in Pennsylvania



*The figures here represent employment in counties in rural and urban counties with no wells drilled between 2002 and 2012. A county is defined as rural if the 2005 population per square mile in that county is below its corresponding statewide population per square mile.
Source: Multi-State Shale Collaborative based on Quarterly Census of Employment and Wages data.

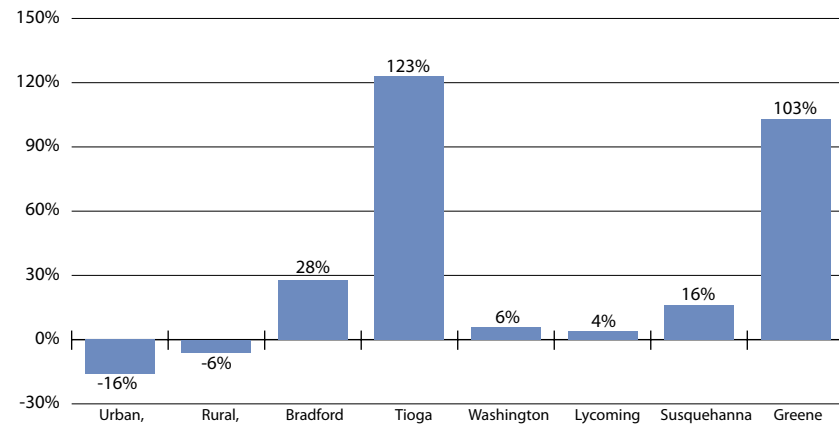
Crime

Natural resource extraction booms tend to lead to an influx of out-of-state workers, including transient young men making higher-than-average wages. Local traffic increases, area bars and restaurants fill up, and small town life changes. Numerous studies have found that with this influx comes an increase in crime.

Violent crime. The six high-drilling counties were the only counties in Pennsylvania that saw statistically significant increases in violent crimes.

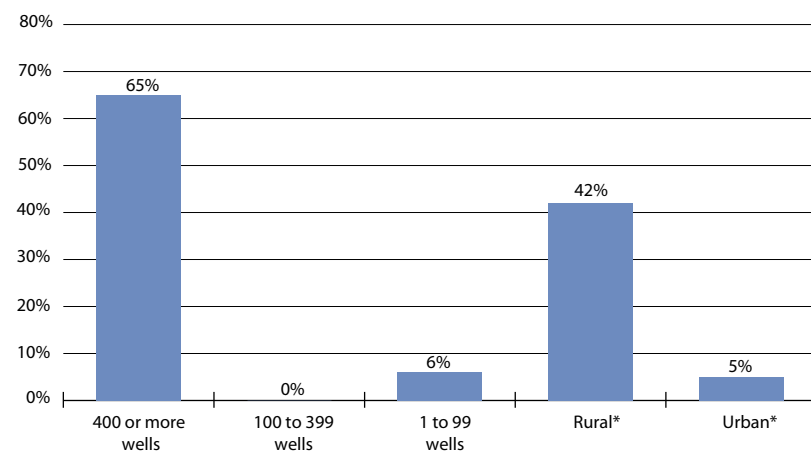
This increase corresponds to about 130 more violent crimes in these six counties. During this same period, the violent crime rate was down in both urban and rural communities with no wells. The analysis also found an increase in property crime of 10.8% in the high-drilling counties in Pennsylvania, and a 48% increase in drug abuse

Percent Change 2005-2012 in Violent Crime Rates in the Heaviest Drilling Counties in Pennsylvania



Source: Multi-State Shale Collaborative based on Pennsylvania State Police and Bureau of Economic Analysis data.

DUI Offenses Were Up 65% in the Heaviest Drilling Counties in Pennsylvania



*The figures here represent employment in counties in rural and urban counties with no wells drilled between 2002 and 2012. A county is defined as rural if the 2005 population per square mile in that county is below its corresponding statewide population per square mile.
Source: Multi-State Shale Collaborative based on Pennsylvania State Police and Bureau of Economic Analysis data.

rates.

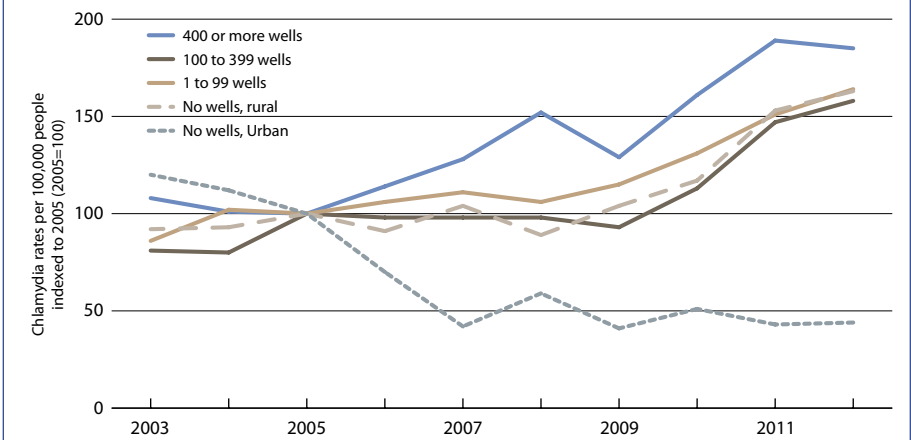
Drug and alcohol crime. Between 2005 and 2012 in Pennsylvania, drug abuse rates rose 48% in the high-drilling counties, or about 600 more cases per year. DUI offenses were up 65% in high-drilling counties, compared to 42% in rural counties without drilling.

Sexually Transmitted Diseases

Sexually transmitted disease rates have increased in some areas where gas workers, mostly young men, have entered a town en masse to work in the gas (or related) industries.

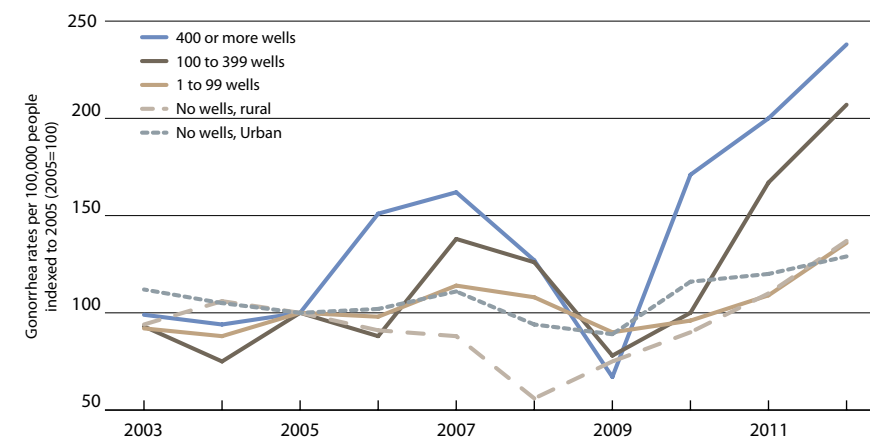
Since 2005, there has been an increase of 24% to 27% in rates of infection for chlamydia across all categories of drilling counties compared to non-drilling counties. There was also an increase in gonorrhea infection rates in high- and medium-drilling counties.

Chlamydia Rates in Pennsylvania by Drilling Intensity 2003-2012



Source: Multi-State Shale Collaborative based on Center for Disease Control and Bureau of Economic Analysis data.

Gonorrhea Rates in Pennsylvania by Drilling Intensity 2003-2012

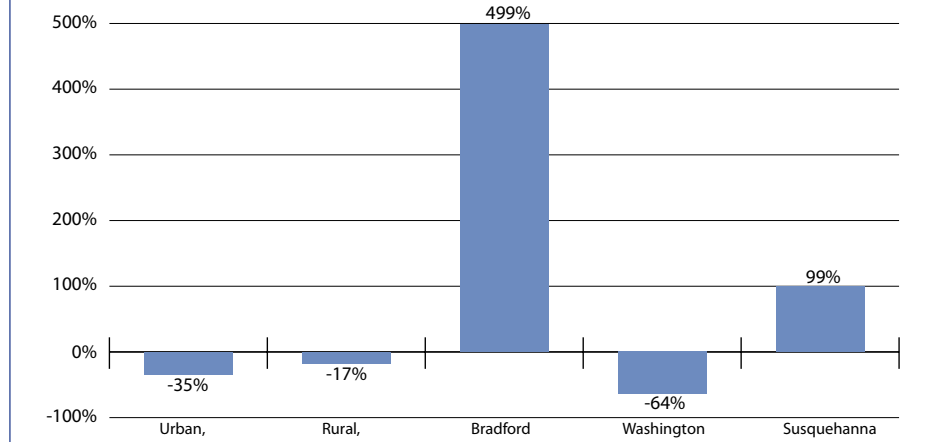


Source: Multi-State Shale Collaborative based on Center for Disease Control and Bureau of Economic Analysis data.

Motor Vehicle Fatalities

Traffic fatalities involving trucks in the six high-drilling counties increased by 27.8% from 2005 to 2012, compared to 2000 to 2005.

Percent Change in Traffic Fatalities Involving Trucks from 2005-2010 in Three High-Drilling Counties in Pennsylvania



Source: Multi-State Shale Collaborative based on Center for the Management of Information for Safe and Sustainable Transportation and Bureau of Economic Analysis data.

Housing

Large housing stipends for oil and gas workers, and limited supplies of housing, translated into a doubling, tripling, or even quadrupling of rental rates, according to local interviews. In Tioga County, classified ads in the Wellsboro Gazette documented a doubling or tripling of rents for comparable housing between 2007-08 and 2012.

In Tioga and Greene counties, empty lots were being turned into RV sites, sometimes without adequate connections to water, sewer, or electrical systems.

In Greene County, increased demand exacerbated a pre-existing shortage of affordable housing. Some residents had to move out of the county or live in substandard housing that lacked running water. Some landlords rented unlivable properties for high prices.

Homelessness increased in Tioga and Greene counties. The Tioga County Department of Human Services reported a four- to five-fold