Economic Implications of Natural Gas Drilling in the Marcellus Shale Region

By Timothy W. Kelsey, Ph.D., Professor of Agricultural Economics, Penn State Cooperative Extension, and Thomas B. Murphy, Co-Director, Penn State Marcellus Center for Outreach and Research

The recent onset of drilling for natural gas in the Marcellus shale region is having a major impact on businesses, residents, and communities in Pennsylvania. According to Pennsylvania’s Department of Environmental Protection, since 2007 approximately 2,400 wells have been drilled in Pennsylvania to extract natural gas from the Marcellus shale formation, with the number expanding exponentially every year. More than 100 energy companies and related subcontracting firms have moved to Pennsylvania and are now active within the Marcellus shale region, bringing significant employment and business opportunities for the foreseeable future.

However, along with these opportunities, development of Marcellus shale is also bringing some significant challenges, including environmental and social impacts. Most of the development is occurring in relatively small communities that lack the infrastructure and support necessary to accommodate rapid, intense population growth and economic and workforce expansion.

The Marcellus shale region of Pennsylvania extends from the northeastern to southwestern corners of the state and includes some of the...continued on page 10
Message from the Community Affairs Officer

The weather has finally cleared and it looks like we have survived the snowstorms of 2011. We had to postpone one meeting this winter, but we held two meetings in March, including one on the viability of the private rental housing sector of one- to four-unit buildings. Nationally, renters comprise 33 percent of all households, and more than 50 percent of them live in one- to four-family structures. Given the increasing number of properties in foreclosure and subsequently purchased by investors, and the fact that two-thirds of all renters have incomes below 80 percent of the area median income, we think this is an important issue for all communities. Look for Keith Rolland’s story on what we learned from lenders, local government officials, and for-profit and nonprofit owners.

We also held a meeting that provided the latest information on programs to prevent foreclosure; you can view the speakers’ presentations on our Bank’s website. This was the first time that live audio and video of a Philadelphia Fed meeting was provided to people outside the Bank.

Natural gas drilling and extraction in Marcellus shale are having a major impact on economic development in Pennsylvania, affecting businesses, residents, and communities. The economic impact, as well as housing challenges, is described in two extensive articles contributed by Penn State Cooperative Extension and the Penn State Marcellus Center for Outreach and Research.

Since the last issue of Cascade was published, we have launched two new tools to help you with your work. The first is Map Your Community, which is available on our website. It allows you to easily and quickly examine certain data (such as educational levels, income, and property vacancies) on your community through a mapping interface. We partnered with The Reinvestment Fund’s PolicyMap to provide you with this information. Please try this tool and let us know if we have captured the information you need most.

In January we launched our Community Outlook Survey (COS). We have always had conversations on financing and other needs in the diverse communities of our Federal Reserve District. This survey is a complement to our face-to-face meetings, plus it allows us to tabulate the responses throughout the District. We will build a diffusion index and identify trends as we receive quarterly responses. A similar business survey has been used for 40 years with the business community, and it is interesting to see how responses change shortly before a recession or growth period. We plan to use the COS the same way. To see a copy of the first set of results, go to www.philadelphiafed.org and select Community Development and then COS.

In this issue, you can also read about two bankers’ notable leadership in financial education.

Last but not least, earlier this year we changed the name of our department from Community Affairs to Community Development Studies and Education. We think this name more clearly identifies what we do.
Lessons Emerge from 19 Years of HOPE VI Funding
By Keith L. Rolland, Community Development Advisor

Public housing authority directors, researchers, developers, and HUD officials recently debated the successes and shortcomings of the federal HOPE VI program at a conference co-sponsored by HUD and the Council of Large Public Housing Authorities.

HOPE VI grants are used to demolish and rebuild or rehabilitate severely distressed public housing projects into mixed-income communities with homeowners and renters. The program also seeks to transform residents’ lives and help them become self-sufficient. Since the program’s inception in 1992, 132 local public housing authorities have received 254 HOPE VI grants totaling more than $6.1 billion.1

The Obama administration has introduced a Choice Neighborhoods program to build on the lessons learned from HOPE VI and achieve more comprehensive neighborhood revitalization. The Choice Neighborhoods program will target federally assisted housing in addition to public housing and requires that employment, quality education, public safety, health, and recreation be part of a comprehensive neighborhood revitalization strategy.

Some issues raised at the conference included:

- How did residents who had relocated during new construction or rehabilitation and then returned to the new developments fare long term?
- How did residents who had left public housing and then used their Section 8 vouchers to obtain private housing fare long term?
- What was the impact of HOPE VI on the surrounding neighborhoods and real estate markets?
- Was a sense of community created among homeowners and renters in the new mixed-income developments?

Several speakers agreed that mixed-income development has as much promise as a poverty deconcentration strategy, although the program has been largely unable to address multifaceted social problems in residents’ lives, such as health and barriers to employment.2 The speakers noted that the percent of market-rate occupants varied widely in HOPE VI developments and observed that the recession has hurt the ability and willingness of market-rate residents to move into HOPE VI developments.

A deteriorated public housing complex in New Orleans that had 724 units, of which only 144 were occupied, was redeveloped with HOPE VI funds and other financing. The new development has 460 rental units, consisting of 193 public housing units, 144 units affordable to residents earning up to 60 percent of the area median income, and 123 market-rate units. Rental townhouses are shown in the photo above. A total of 22 for-sale scattered-site units, affordable to residents with incomes up to 60 percent and 80 percent of the area median income, are also planned.

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2 The Chicago Housing Authority is testing an intensive case management approach serving the “hardest to house” families in a research demonstration with the Urban Institute.
said, “Though HOPE VI finance Portland, OR, Housing Authority, Rudman, executive director of the space in the developments. Steve on when residents could use public to the isolation was a lack of clarity developments. A contributing factor self-isolation in the new HOPE VI degree of social interaction and some Joseph found that there was a low deterred the return of some tenants programs to new mixed-income developments reported high satisfaction with their units and the surrounding physical environment and described a range of associated benefits, including lower stress due to reduced safety concerns. He also said that the HOPE VI program did not provide one-for-one replacement of units, so there were not enough units for all of the original residents. In addition, the size of the units, rigorous tenant selection, and construction delays of up to five years deferred the return of some tenants to their original HOPE VI sites.

Mark Joseph, assistant professor at Case Western Reserve University, said that those residents who were able to move back to new mixed-income developments reported high satisfaction with their units and the surrounding physical environment and described a range of associated benefits, including lower stress due to reduced safety concerns. He also said that the HOPE VI program did not provide one-for-one replacement of units, so there were not enough units for all of the original residents. In addition, the size of the units, rigorous tenant selection, and construction delays of up to five years deterred the return of some tenants to their original HOPE VI sites.

Joseph found that there was a low degree of social interaction and some self-isolation in the new HOPE VI developments. A contributing factor to the isolation was a lack of clarity on when residents could use public space in the developments. Steve Rudman, executive director of the Portland, OR, Housing Authority, said, “Though HOPE VI finance transactions are particularly complex and challenging, development is actually the easier part. The social aspects are much more difficult. Engaging residents to become part of a mixed-income community is time-consuming, messy, and unpredictable.”

Larry Buron, senior associate with Abt Associates, said that, in the early stages of HOPE VI, public officials assumed that the original residents would return without a concerted effort. A 2003 study found that only about one-third of the original residents moved back to new mixed-income HOPE VI developments; it also found that the emphasis was on replacing the worst public housing rather than on long-term sustainable neighborhood improvement. Other speakers said that early on the program was mistakenly seen as a “cookie cutter” solution, although cities have very different real estate markets.

Richard P. Voith, senior vice president of Econsult Corporation in Philadelphia, said he found that HOPE VI augmented existing development activity but had only a moderate impact in cities in which there was virtually no such activity. He found significant, widespread gains in property values and notable declines in violent crime in HOPE VI developments.

Speakers debated what is the right “mix” of public housing and market-rate residents and noted that good schools and low crime rates are needed. A point of debate was the “right to return” provision in the Choice Neighborhoods notice of funding availability. Developers said that a major reason for HOPE VI’s success is the strict standards for returning residents and that a proposed one-for-one unit replacement policy will make it harder to have a good mix of market-rate and public housing or federally assisted residents.

Richard Baron, chairman and CEO of McCormack Baron Salazar in St. Louis, said that it’s important to include supportive services for families and children, such as after-school, arts, and summer programs; however, it is a continuing challenge to find funding for these services. He said anecdotally he knows that many residents and their children move ahead in HOPE VI developments and that it ought to be studied in quantitative research.

Choice Neighborhoods seeks partnerships among public housing authorities, local governments, non-profits, for-profit developers, private investors, and federal agencies. Speakers at the March conference advocated that public housing residents be centrally involved in planning and implementing the new program.

For information, contact Erika C. Poethig, Deputy Assistant Secretary for Policy Development, at 202-402-5613 or erika.c.poethig@hud.gov; www.hud.gov.

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4 A range of publications on mixed-income development are available at http://msass.case.edu/faculty/mjoseph/selected_publications.html.


6 For information on the first Choice Neighborhoods planning grants, go to http://tinyurl.com/6etrcl. The grants include one to Mt. Vernon Manor, Inc., which created a transformation plan for Philadelphia’s Mantua neighborhood with Diamond and Associates.
Maintaining the Viability of Small-Scale Rental Housing

By Keith L. Rolland, Community Development Advisor

The need for better cooperation between rental housing owners, city housing inspectors, and tenants was highlighted at a recent roundtable at the Philadelphia Fed on maintaining the viability of the private rental housing sector of one- to four-unit buildings.

The context for the discussion was set by Alan Mallach,1 senior fellow for the Center for Community Progress and visiting scholar at the Philadelphia Fed, and Karen Black,2 principal of May 8 Consulting. Both said that national political leaders and policies have, for the past decade, overemphasized homeownership and paid little attention to rental housing.

They both indicated that rental housing has a stigma and is often associated with deteriorated housing conditions and communities. They pointed out that small-scale rental housing is important and that half of the rental units nationally are in one- to four-unit buildings.3

The seminar, which is part of an ongoing focus on rental housing issues by the Philadelphia Fed’s Community Development Studies and Education Department,4 was attended by 38 nonprofit and for-profit developers, lenders, government practitioners, and researchers in the rental housing field. It was co-sponsored by the Federal Reserve Banks of Philadelphia and Cleveland and the Federal Reserve Board of Governors.

Some issues raised at the seminar involved acquisition and rehabilitation financing; compliance with new government regulations; challenges in working with absentee landlords; and tenant selection, retention, and eviction. The speakers and attendees focused on strategies and solutions for these and other issues.

Chris Krehmeyer, president and CEO of Beyond Housing in St. Louis, said, “Small-scale rental housing must be part of a larger comprehensive place-based strategy that includes both homeownership and rental housing. We’re pro-active and we contact municipal code enforcement departments to ask how we’re doing.” The nonprofit’s staff members talk to both municipal officials and renters regularly and help renters set goals and create an action plan. The tenants have stayed an average of six years, during which time 70 percent increased their income and 90 percent pursued educational goals, Krehmeyer said. The turnover rate during that time was about 25 percent.

Ann Houston, executive director of Chelsea Neighborhood Developers in Chelsea, MA, said that municipal housing inspections should be rigorous because weak code enforcement results in lower sales prices. Inspectors are sometimes reluctant to go after the worst landlords, and that practice has an impact on the value of properties owned by both non-profits and for-profits.

Houston added that municipal housing inspectors “have the power to convene and help build a culture for owners, city inspectors, and renters to work together.” She said, “We need a joint strategy in which each respects the other’s role.” Inspectors must rely on communication more because municipal budgets, including for housing code enforcement, are being reduced.

David Paulus, director of Building Standards and Safety for the city of Allentown, agreed that communication was key. He said, “I tell my inspectors, your biggest tool is your communications skills, not your badge. The goal is to have a good relationship with landlords.”

Martha Van Cleve, president of Meridian Property Services, a for-profit management company that owns and manages apartment buildings in Trenton and Hamilton, NJ, noted

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3 According to American Community Survey estimates for 2005–2009, in the United States 51 percent of renter-occupied units are in structures with one to four units. New Jersey and Delaware resemble the nation at 51 and 52 percent, respectively. In Pennsylvania, the percentage of renter-occupied units in structures with one to four units is higher at 62 percent.

4 Affordability and Availability of Rental Housing in Pennsylvania, a special report published in 2010 by the Community Development Studies and Education Department, is available at http://www.philadelphiafed.org/community-development/publications (go to Special Reports).
Tom Petro, president and CEO of Fox Chase Bank based in Hatboro, PA, watched family members and neighbors struggle with excessive debt and was especially troubled that an employee at the bank resorted to payday loans.

Petro and his wife, Kris Messner, a business consultant, began holding workshops for the bank’s employees, and in the fall of 2009, they decided to write a book entitled *Save! America: Your Guide to Achieving Financial Freedom* to help consumers manage their money. In writing the book, they remembered how they struggled to manage their finances when they were first married in their mid-20s. They met a financial advisor who described a system that they outline in the book. Petro said, “With the system, we were both in alignment and all the tension over money went out of our marriage.”

The book has become the cornerstone of the bank’s financial education program, which includes training “certified savings counselors” in the bank’s branches and conducting seminars in its community in southeastern Pennsylvania.

Fox Chase Bank paid for the book’s printing in January 2010 and distributed about 6,000 copies without charge at the bank’s branches and seminars. The book is sold on Amazon.com as a paperback and a Kindle e-book. All proceeds are donated to the Fox Chase Bank Charitable Foundation, which funds financial education, entrepreneurship, the arts, and human services.

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**Book Review**

*Save! America: Your Guide to Achieving Financial Freedom*

This 162-page book conveys practical information on managing personal finances in an easy-to-understand, direct style.

Tom Petro, CEO of Fox Chase Bank, and his wife, Kris Messner, a business consultant, advocate freeing up about 2 percent to 5 percent of take-home pay to accelerate debt repayment and build cash-reserve accounts, which can reduce the use of credit cards.

Petro and Messner emphasize seven principles:

- **Make a Budget and Stick to It** — A budget enables an individual or family to gain control of their finances and become aware of small, unnoticed expenditures.

- **Give Yourself an Allowance** — Take an allowance with no restrictions for discretionary spending and use a “weekly draw” for budgeted expenses.

Thus, one portion of the budget is used for “fun things” that are not part of the budget, and the other portion of the budget is used for “must-haves,” such as parking or train fare.

- **Restrict the Use of Your Debit Card** — Use debit cards only for necessities, such as groceries and medicines, to help keep track of budgeted expenses.

- **Establish Cash-Reserve Accounts** — Build cash-reserve accounts for expected expenses, such as auto maintenance and inspections, home repairs and appliances, clothing for work, tuition, gifts, and vacations. This helps avoid taking on additional debt. In addition, gradually build a “rainy day” fund until it reaches six months of living expenses.

- **Start Paying Off Your Debts** — Avoid using a credit card as an extension of income and pay the card off each month. Resolve disputes with creditors.

- **Pay Yourself First** — Save and invest money for retirement.

- **Live Within Your Means** — Live within or, preferably, below your means. Seek sales and discounts when making purchases.

A chapter that describes each principle is listed on Fox Chase Bank’s website at www.foxchasebank.com/saveamerica. The site also has useful budget templates that can be downloaded.

—Keith L. Rolland
Banker’s Financial Education Efforts
Focus on Students

Aaron L. Groff, Jr., chairman, president, and CEO of Ephrata National Bank (ENB) in Ephrata, PA, shares his insights about personal finance with students through the Junior Achievement program, school tours, and presentations, and discusses helping teachers to obtain training.

Groff teaches several lessons on budgeting and credit to eighth-grade students as part of Junior Achievement’s Economics for Success program. He explains the importance of educational and career goals and relates how he started his banking career with positions at ENB as a clerk and a teller.

In addition, when students come to the bank for tours arranged by local schools, he provides an overview of banking and the importance of each person’s credit record. He emphasizes basic concepts about money when he speaks with young children and discusses bank accounts and loans with older students.

Last summer, ENB made a contribution to the Ephrata Area School District that enabled three teachers to attend “Keys to Financial Success,” the Philadelphia Fed’s personal finance training program for high school teachers held each summer.

Groff shared these reflections about financial education:

“Sharing experiences with the next generation is an investment of time and energy where you get to keep the ‘change.’ Especially during these times of economic uncertainty, teaching students safe and sound money management skills — save more, borrow less — is paramount. I also appreciate the opportunity to teach them the role of the bank — a caretaker, never the owner, of the community’s money.

“The ‘bank’s money’ actually belongs to the students, their families, and their friends. Putting the deposit and lending relationship in this context helps students understand the importance of being financially responsible, especially with regard to loans. I believe this is a prudent lesson for all bankers as well. Remembering this ‘caretaker’ role encourages prudent loan underwriting standards and strong partnerships with customers.”

—Keith L. Rolland

For information, contact Todd Zartman at todd.zartman@phil.frb.org.

* The five-day program will be offered June 27–July 1, 2011, at the Philadelphia Fed. For information, contact Todd Zartman at todd.zartman@phil.frb.org.
The Distributional Impact of Unemployment

The recession of 2008–09 has had debilitating effects throughout the economy. One lingering effect that continues to receive a great deal of attention is the persistently high rate of unemployment. Since the recent recession has left a large number of American workers without employment, the creation of more jobs would provide welcome relief to some of those who have been struggling to find a job. However, the creation of jobs for jobs’ sake might not be a panacea if the skills required in the new jobs do not match those possessed by the unemployed. Thus, the distribution of job losses among different segments of the labor force and their requisite job skills might figure prominently in addressing the unemployment dilemma. A study by Andrew Sum, Ishwar Khatiwada, Joseph McLaughlin, and Sheila Palma provides some insight by focusing on those workers hardest hit by the recession.1 Following is a summary of their analysis.

Data and Results
Sum et al. used data from several sources to conduct their analysis, including various reports from the U.S. Bureau of Labor Statistics and the U.S. Census Bureau’s Current Population Survey of households. The authors found that the recent recession “sharply increased unemployment, underemployment, hidden unemployment, and other forms of labor underutilization,” among other effects.2 They further reported that the job losses and resulting rising unemployment problems were not shared evenly among workers by gender, age, race–ethnicity, educational attainment, or occupational groups. As with past recessions, certain segments of the workforce, such as young workers, black males, those with less educational attainment, and blue-collar workers, tend to bear a greater deal of the job losses. The authors stressed that, as a result of the recent recession, “blue-collar workers (construction crafts, manufacturing operatives and other production workers, laborers and helpers, and transportation operatives/material movers) have been more severely affected than any other group.”3

Recent Recession’s Overall Job Losses.
Sum et al. focused their analysis on the period from November–December 2007 (the recession officially started in December 2007) through February 2010. According to them, nonfarm payroll jobs declined by 3.3 million between November–December 2007 and the end of 2008 and by nearly 8.4 million from November–December 2007 to January–February 2010. However, there was an uneven distribution of the job losses across key industrial sectors, with those industries that are primary employers of blue-collar workers experiencing a greater decline than other industries.

Relative Job Loss of Blue-Collar Workers.
The authors noted that total employment fell by nearly 18 percent in three industries (construction, manufacturing, and transportation/warehousing) where the majority of workers are blue-collar. These indus-


2 This includes those workers who are seeking jobs but remain unemployed, those who desire full-time employment but are working less than 40 hours a week, those who are working at jobs that do not require them to use their primary skills, and those who want to work but who have stopped looking for employment out of frustration due to unsuccessful job hunting.

3 The authors noted that earlier papers refer to the severity of job losses among blue-collar workers as “Blue-Collar Depression.”
tries “accounted for 54 percent of all payroll job losses across the entire economy through January–February 2010.” To provide some context, the authors pointed out that “during the Great Depression of 1929–33, total employment in the U.S. had been estimated to have fallen by slightly more than 18 percent.” Sum et al. also indicated that the industrial sectors that were least likely to employ blue-collar workers lost fewer jobs or actually increased employment. More specifically, between the fourth quarters of 2007 and 2009 there was a 2.4 percent growth rate for professional/technical workers.

Sum et al. highlighted how educational attainment figured prominently in the employment picture during the economic downturn. They noted that “between November 2007 and January 2010, employment among males with no high school diploma or GED certificate fell by just under 17 percent versus declines of 10 to 11 percent among males with a high school diploma or one to three years of college and only 1 percent among males with a bachelor’s or higher degree.”

Blue-Collar Unemployment and Underemployment. Given the marked decline in employment among blue-collar workers, the authors explored whether this group experienced above-average increases in their unemployment and underemployment. Once again, there was a stark difference between the blue-collar groups and those in the professional and managerial occupations. By the fourth quarter of 2009, they found double-digit unemployment rates in three of the four blue-collar groups (ranging from nearly 12 percent to slightly less than 21 percent). In contrast, “professional and managerial workers faced unemployment rates only in the four- to five-per-

centage-point range, which would be considered the equivalent of near full employment for the entire labor force.”

A similar situation occurred with underemployment. The authors reported that “the underemployment rates of blue-collar workers in the fourth quarter of 2009 ranged from a low of 4.6 percent among installation/maintenance/repair workers to 8.4 percent for transportation operators/material movers to a high of over 15 percent for construction and extraction occupations.” The professional and managerial workers fared much better with underemployment rates only in the 2 to 3 percentage point range.

To dramatize the labor market difficulties of blue-collar workers, the authors combined the unemployment and underemployment rates and found that three of the four blue-collar groups experienced combined unemployment/underemployment problems in the 19–33 percent range, while both professional and managerial workers faced combined rates in the 7 percent range.” Sum et al. further noted that the disparity in the combined rates for these two groups “widened considerably over the course of the recession.”

Impact of Employment Problems on Blue-Collar Workers. Sum et al. indicated that the jobless difficulties of blue-collar workers have serious negative consequences. The increases in the mean duration of unemployment spells over the course of the recession diminish their reemployment prospects and lessen their hopes of obtaining a job at their former earnings. Moreover, those blue-collar workers who are permanently displaced from their jobs face stiff competition from a large surplus of workers seeking employment.

Other Groups Affected by the Recession. In addition to the recession having a negative impact on the overall category of blue-collar workers, certain subgroups that were also adversely affected are worth mentioning. Since blue-collar occupations are composed mostly of males, men experienced greater job loss than women (10.8 percent unemployment rate versus 8.6). Moreover, black males as well as young males (under 30) who lack post-secondary degrees were severely affected. Black males had an employment loss of 10.1 percent, while the decline in blue-collar employment shut young males out of a key segment of jobs.

Concluding Observations
Sum et al. determined that “the recession of 2008–9 has taken a very severe toll on the labor market fortunes of the nation’s blue-collar workers. Rising displacement from their jobs and an increasing incidence of both unemployment and underemployment problems have put them in severe long-term jeopardy.” They noted that “the depression in many blue-collar labor markets will not be resolved by a modest recovery of the U.S. economy over the next few years.” Thus, they called for expanded and revamped training and retraining efforts to assist displaced workers. But they hasten to add that the nation has not had a promising track record on retraining efforts for displaced workers. Nonetheless, the authors suggested that “new innovative training efforts with strong ties to employers, including combined classroom/on-the-job training efforts, will be needed to increase long-term employment and earnings outcomes for the nation’s dislocated blue-collar workers.”
formation have been struggling economically and have seen a decline in population over the past two decades. Therefore, many people in the region view the drilling activity in the Marcellus shale as a potential economic lifesaver. Drilling activity so far has been concentrated in two general areas of the state: Bradford, Susquehanna, and Tioga counties in the northern tier; and Fayette, Greene, and Washington counties in the southwestern portion. However, there has been an increase in drilling activity between these two areas.

The development of Marcellus shale natural gas is still very young; therefore, little is known about its future implications. Experts predict that the drilling activity could last 30 to 50 years or more. In addition, there are at least four other strata of deep shales above and below Marcellus in Pennsylvania that could become commercially viable once the natural gas development infrastructure is in place, further extending the development activity. The onset of development has been very rapid, as has the scaling up of production, catching many communities (and some would argue the state) by surprise. Many communities have felt they are playing “catch up” rather than being able to anticipate and plan for the changes that are occurring.

Economic Implications
Marcellus shale is a nonrenewable natural resource; therefore, the economic development opportunities will fade as the resource is extracted. It is critical that policymakers, businesses, and communities plan for how this economic opportunity can be used to benefit their communities over the long term, rather than just focusing on more immediate gains. The economic implications from the development of Marcellus shale arise from several factors, including: (1) the gas industry’s spending on subcontractors, workers, and local goods and services; (2) increased spending by landowners who are receiving leasing and royalty dollars from gas companies in exchange for access to their property; and (3) the relocation and/or expansion of industries with high energy use or similar firms to the region because they want to benefit from the ample gas supplies with more predictable energy cost models.

Current estimates indicate that about 489 trillion cubic feet of gas can be recovered from the Marcellus shale formation in Pennsylvania, for a total gross value of $1.46 trillion. The Pennsylvania economy in 2008, by contrast, was $499 billion (as defined by total personal income). The relative local economic impact will be larger than this, however, because counties with Marcellus are a relatively small share of the commonwealth’s economy, accounting for only $207 billion of this total. State law requires that gas rights owners be paid a minimum of one-eighth of the value of production from gas wells, which means a significant amount of the value will go directly to them.
The landowners’ estimated share of royalty value per well, which typically drains 80 acres, is around $2.5 million and will be paid out over the lifetime of the well. This could lead to Pennsylvania landowners receiving an estimated $200 billion over the life of the Marcellus shale development.

Experience with gas development in other states indicates that economic benefits are also being obtained by other sectors of the economy, not just the oil and gas sector. Most economic sectors report increased business activity and employment due to spending by the drilling industry as well as by the mineral rights owner. Some concerns have been expressed that certain sectors in Pennsylvania, such as the tourist sector, may be harmed, but such impacts have not yet been documented due to the young age of the development. The anecdotal evidence from the counties in the Marcellus shale region suggests that a broad range of businesses are experiencing significant new activity — even sectors that are not traditionally aligned with the gas industry, such as laundromats, sign makers, and jewelers.

Some currently available secondary data sources are providing evidence that dollars and activity that are generated from the Marcellus shale are making a difference in Pennsylvania counties that have significant gas drilling activity. For example, counties with more than 100 wells in 2010 experienced larger changes in total employment than did counties with less or no Marcellus-related drilling activity. Likewise, the unemployment rates are lower in counties that have drilling activity than elsewhere in the commonwealth. State sales tax collections, which are an important indicator of the level of retail sales activity, are also increasing significantly in counties with major Marcellus-related drilling activity, up an average of more than 11 percent between 2007 and 2010 in Pennsylvania’s top five counties where Marcellus drilling is occurring. During this same period, counties with no Marcellus activity experienced an average 6.5 percent decrease in sales tax collections.

Workforce and Business Implications

Workforce needs that are associated with natural gas development are particularly broad. A recent workforce study identified more than 150 different occupations that are directly associated with drilling a Marcellus well; more than 420 individuals are required, and the time commitments add up to about 12.9 full-time direct jobs per well drilled. Only about one-quarter of the jobs require a four-year degree or higher, with many of the remaining jobs requiring some specialized training or certification, such as a commercial driver’s license. Because the training requirements for most jobs are not overly restrictive, many of the positions are broadly available to the general workforce.

Many of the highly skilled jobs associated with drilling and completing a well are currently being held by workers from outside Pennsylvania...

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vania who have moved temporarily into the commonwealth to give the companies time to develop and train a local workforce. As a result, hotel rooms and rental properties can be difficult to find in counties with high drilling activity. Many community colleges and worker training programs in Pennsylvania have been adjusting and expanding their programs in response to the growing demand for Marcellus-related jobs. It is difficult to determine how many workers are from out of state because available data sources do not provide state-of-origin information on employment.

With the exception of the skilled jobs on the rigs, anecdotal evidence is that Pennsylvanians will be hired for most of the jobs. In addition, anecdotal evidence strongly suggests that many small businesses in Pennsylvania are adjusting to the development of the Marcellus and have been expanding their business activity as a result. Net profits were up by an average of 10.8 percent in counties with high Marcellus activity between 2007 and 2008, for example, compared with only 1.7 percent in counties with no Marcellus activity.4

### Phases of Natural Gas Development

The majority of the economic impact of natural gas drilling in the Marcellus shale will occur during the development phase, which is the most labor-intensive portion of natural gas activity. During this phase, the pipelines and well pads are constructed, and the wells are drilled. Once all the wells are developed, long-term workers will be needed to tend to and maintain the active wells along with the supporting infrastructure; however, these jobs are significantly fewer in number than those that are needed during the drilling and construction process. Royalty income similarly will be the highest during the development phase, since production from each individual well declines quickly over the first 24 to 30 months before it stabilizes at a slowly declining rate.

No one knows how long the development phase will last, since it depends critically upon how many drill rigs are operating in Pennsylvania, the comparative advantage of Marcellus shale to other natural gas developments, broader market forces, and the long-run plans of the drilling companies. The range expressed by experts typically varies between 30 and 50 years (and it could be longer if any of Pennsylvania’s other gas shales prove to be commercially viable). Similarly, no one knows precisely how long individual Marcellus wells will remain productive because there is a lack of long-term experience with the productivity of such wells.

The different phases of natural gas development have strong implications for the economic impact of Marcellus shale activity. The major difference in labor requirements between the development and later phases can create difficult policy trade-offs, particularly related to infrastructure needs. Housing is critical to ensure that the workers and their families live within the community and spend their dollars locally, rather than spending those dollars immediately after leaving. However, if housing is built to accommodate short-term needs (albeit potentially 30 to 50 years), the community may have a major surplus of housing after the development phase is over and most of the workers have left. It is important to understand that the major economic impacts will phase out as drilling ends; therefore, business owners and residents in these communities must act during this phase to capture the benefits and simultaneously plan for the long term when these benefits will no longer be available.

### Other Implications

Much of the public controversy over drilling for natural gas in the Marcellus shale relates to potential environmental implications, particularly with regard to water use and groundwater contamination. Other concerns relate to forest fragmentation, invasive species, and air quality. Regulatory agencies are reviewing these issues and are encouraging methods that have minimal impact, but because some of the environmental risks are still unclear, advocacy groups are at odds over how much regulation is enough.

There has been less focus on the social implications of Marcellus shale development, but these may prove almost as important in the long run. The influx of new workers has the potential to change the communities and create conflicts between long-term and new residents about community needs. Anecdotes from local governments in Pennsylvania suggest that the development is affecting the demand and cost for local government services, such as emergency services, law enforcement and the courts, human services, and most particularly, roads and other infrastructure. Rising housing costs have already made it difficult for low-income households in several Pennsylvania counties to make ends meet, and these rising costs have the potential to become an effective barrier for such families to remain in those communities. Because the benefits and costs of development will not be distributed equally across all residents, there very clearly will be some “haves” and “have-nots” as a result of development, thereby increasing the potential for community conflict.

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4 See the article by Costanzo and Kelsey.
Of equal concern is the ability of local governments to influence what occurs within their jurisdiction. Local control of gas development is limited in Pennsylvania due to the state Oil and Gas Act, which specifically preempts local decision-making about key aspects of gas development. Much of the development is occurring in very small rural communities, and the governments in these communities have limited resources and, therefore, may lack the capacity to act even if the law allowed such control.

**Role of the Banking Industry**

The banking industry can play important roles within the development of the Marcellus shale formation. Anecdotes from people in the communities in the Marcellus shale region indicate that some local businesses are trying to expand but are finding it difficult to obtain local financing. Local financing can help local firms successfully compete with newcomers from outside the region, keeping profits within the community. The banking industry can also assist with helping to attract or establish businesses that rely heavily upon natural gas as an input and that may find it profitable to locate within the state. Financing likely will be particularly important for exploring this opportunity.

Many of the gas rights owners who are receiving royalties have never handled such large checks and therefore are unfamiliar with the financial management tools and skills necessary for effectively managing their portfolios, including appropriate investment vehicles, risk management, and estate planning. The banking industry can assist owners in making appropriate financial management decisions and thereby help them manage their portfolios. The legal component of wealth management and the deployment of appropriate tax strategies will also be critical for landowners and their family members for several generations. The banks, which serve as trusted financial agents in these communities, will play an important role as the Marcellus shale is developed in Pennsylvania.

**Summary**

The development of the Marcellus shale natural gas resource in Pennsylvania has the potential to profoundly change the commonwealth. Over time, extraction of this energy resource will affect Pennsylvania’s economy, society, environment, workforce, businesses, and residents. In addition, these implications will be multigenerational in nature. Active participation by landowners, regulators, environmental advocates, academia, the broader business community, and a wealth of interested stakeholders is key to ensuring that the development of Marcellus shale has the most positive effects on the commonwealth. And most important to those pending discussions will be accurate, scientifically validated data that can be used to make strategic decisions, both at the individual landowner level as well as at the community and statewide levels. Marcellus shale development is having an impact on almost all aspects of life in communities in two-thirds of the geographic area of Pennsylvania, which accounts for half of the commonwealth’s population. Therefore, it is crucial to incorporate new information as the development evolves across the state over the next several decades.5

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One of the more difficult policy issues arising from the development of the Marcellus shale is housing. Gas workers, like most other workers, want to live close to their place of work to avoid commuting time. Therefore, these workers are seeking housing in the areas where Marcellus drilling activity is occurring. Having the workers live locally is best for the economic development of these communities because the workers will spend their salaries locally. However, most of the communities that are currently under major development pressure are very rural and have little surplus housing. In fact, discussions with key local stakeholders indicate that there is a shortage of rental housing in particular. Accommodating the new workers has proved difficult at times, with rents doubling or tripling over the past two years in some communities. This creates obvious difficulties for low-income residents and others who do not own their own homes. There are frequent reports of landlords not renewing leases with existing residents so that they can charge higher rents to incoming gas workers, as well as reports of low-income residents struggling to find affordable places to live within the community. Accommodating the new workers also has the potential of crowding out long-term residents who no longer are able to afford to live in these communities.

Companies have responded to these housing shortages, in part, by renting motel rooms for their workers. In some cases, the gas companies even are renting or purchasing the entire facilities. The result has been a shortage of rooms, raising fears among some that the Marcellus development may be affecting tourism or other travel into the communities. Campgrounds similarly have seen an influx of new residents, typically gas workers looking for temporary housing for several months. Numerous existing hotels within the Marcellus region are expanding their capacity, and new hotels are being built in high-impact areas.

Real estate agents are reporting increases in home sales to incoming transplants with families, but this growth is slower than the rising demand for rental housing. There are some anecdotal reports from companies that there are shortages of higher-end homes, which are currently limiting the number of workers willing to bring their families to Pennsylvania. In addition, some homeowners who had previously put their homes up for sale have taken them off the market to rent them more profitably instead.

One of the housing policy challenges is that the demand for labor, and thus housing, is highest during the development phase of natural gas, which is when all the wells are being drilled and pipelines are being laid. Once this current phase ends (which could be 15 or more years within an individual community, depending upon how many rigs are active), the need for housing will decline dramatically as those workers leave. The challenge for local decision-makers is ensuring that sufficient housing exists during these “boom” years without creating a large housing surplus after the activity ends and making sure that new infrastructure adds value to the community in the long run. To ensure that there isn’t an excess of housing, communities must put careful thought and planning into the housing issue and look for opportunities to address both short- and long-term needs simultaneously. For example, a lack of hotel rooms has been a chronic problem for developing the tourism potential of some parts of Pennsylvania, such as traveling to view Pennsylvania’s elk herd in Cameron and Elk counties, or in several other communities in the “PA Wilds” tourism region. If communities plan appropriately, the new hotels that are built for the natural gas workers could help the tourism industry in the future by providing more places for visitors to stay.

Editor’s note: ProximityOne, a website that provides geodemographic-economic data and analytical tools, reported that the Williamsport, PA, metropolitan statistical area (MSA) was one of two nationally that had the highest four-quarter increase in the housing price index (HPI). The HPI for Williamsport rose 8.38 percent from the third quarter of 2009 to the third quarter of 2010. See http://proximityone.com/hpi.htm. In addition, an electronic newsletter, 24/7 Wall St., reported that the Williamsport MSA was one of 10 MSAs nationally with the greatest increase in home values. It found that home prices increased 18.4 percent from the third quarter of 2005 to the third quarter of 2010. See http://tinyurl.com/6zfmjg8.
How Place Matters Is Subject of New Book

Neighborhood and Life Chances: How Place Matters in Modern America, published recently by the University of Pennsylvania Press, consists of papers that were prepared in conjunction with the Community Development Studies and Education Department’s 2008 conference on “Reinventing Older Communities: How Does Place Matter?”


“Most of us take it for granted that where we live, and especially where our kids grow up, makes a big difference. But this proposition — that neighborhoods matter — is still the topic of spirited disagreement and debate in the scholarly world...

“Neighborhoods do in fact alter children’s long-term prospects, but we don’t entirely understand how. Street crime and violence, lousy schools, dilapidated parks and rec centers, and a dearth of decent grocery stores all pose serious risks for kids. These neighborhood effects help explain why so many kids who are born poor, especially minority kids, remain poor into adulthood.

“We still have a lot to learn about exactly how our neighborhoods affect our kids. It’s clearly not a simple cause-and-effect process. Much of what a neighborhood has to offer, both good and bad, depends on who lives there. And our choices about where to live are influenced by our priorities (good schools or a short commute? cheap rent or low crime?), our budgets, and whether we feel welcome. So the link between people and the places they live looks less like a one-way arrow than a tangle of feedback loops, where both people and places are changing all the time.

“This dynamic complexity makes it tough for researchers to nail down conclusions about causality, and even tougher for policymakers (and constituents) to figure out how to “fix” troubled neighborhoods for the benefit of poor kids and their families.

“We’ve been arguing for way too long about whether public policies should focus on helping people or fixing places. To me, it’s painfully obvious that we should do three things at once: 1) help vulnerable families and kids, regardless of where they’re located; 2) fix the distressed places in which too many of them live; and 3) help poor families move from distressed places to opportunity-rich places if they want to.

“These are complementary, not competing strategies. In fact, failing on any one of them makes it harder to succeed on the others. Instead of bickering about which strategy (place-based or people-based) wins across the board, we should be figuring out how each can contribute…”


Maintaining the Viability of Small-Scale Rental Housing

that government agencies often view landlords as adversaries rather than potential partners in the goal of providing good quality rental housing. She and other speakers emphasized that building partnerships is essential to maintaining a viable market and that long-term occupancy is better for everyone — the owners, the neighborhood, and the tenants.

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Calendar of Events

2011 Federal Reserve Bank of Cleveland Policy Summit
June 9–10, 2011, Cleveland, OH
The Federal Reserve Bank of Cleveland’s annual Policy Summit will focus on housing, inequality, neighborhoods, and labor market issues, with special consideration given to research related to the foreclosure crisis. For information, contact Tim Dunne at tim.dunne@clef.frb.org or Francisca G.-C. Richter at francisca.g.richter@clef.frb.org; http://www.clevelandfed.org/2011policysummit/call.cfm.

Entrepreneurs Forum of Greater Philadelphia
June 14, 2011, Federal Reserve Bank of Philadelphia
This event will focus on the financing needs of minority entrepreneurs. For information, contact Jeri Cohen-Bauman at jeri.cohen-bauman@phil.frb.org.

Homes Within Reach 2011
November 14–16, 2011, Hilton Harrisburg, Harrisburg, PA
The Housing Alliance of Pennsylvania’s annual conference will focus on tools and resources to preserve and increase the supply of safe, decent, affordable homes. For details, go to http://www.housingalliancepa.org/.

Reinventing Older Communities
May 9–11, 2012, Hyatt Regency Philadelphia at Penn’s Landing
The Federal Reserve Bank of Philadelphia’s Community Development Studies and Education Department will host its fifth biennial Reinventing Older Communities conference. The Reinventing conferences are typically attended by policymakers, community developers, bankers, researchers, funders, planners, and government representatives. For information, contact Erin Mierzwa at erin.mierzwa@phil.frb.org.