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Economic & Workforce Brief

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Forecast of the Potential Impact of Increased Royalty Income on the Pennsylvania Economy, 2008–2011

Natural gas distributed throughout the Marcellus black shale in northern Appalachia could boost proven U.S. gas reserves by trillions of cubic feet (see http://live.psu.edu/story/28116).

A recent Pennsylvania Public Broadcasting television program (see http:/wpsu.org/gasrush) explored issues and opportunities faced by landowners navigating the legal and practical issues of leasing their land for natural gas exploration and extraction. In return for lease rights, parties recovering gas customarily pay landowners royalties, which are agreed upon shares of the value of gas lifted from natural deposits.

Individual Pennsylvania landowners will benefit from royalty income earned. At the same time, this additional income will ripple through the entire Pennsylvania economy. As shown in Table 1, the impact of every additional $1 billion of royalty income earned every year in 2008, 2009, 2010, and 2011 is forecasted to create a positive impact on Pennsylvania employment, economic output, personal income, and population.

Table 1 does not provide a forecast of the amount of royalty income that Pennsylvanians will earn. Actual aggregate royalties could be higher or lower than $1 billion. The forecast provided in Table 1 simply is a yardstick for understanding how every $1 billion dollars of Pennsylvania royalty income affects the Pennsylvania economy and population. Additional Pennsylvania personal income from royalty payments creates employment through higher levels of purchases of goods and services, which, in turn, increase the output of Pennsylvania industries, improve the income of Pennsylvania workers, and add to Pennsylvania's population by drawing new workers into the Commonwealth who are responding to growth in employment and income opportunities.

Royalty income probably will contribute only a small portion of the overall impact of Marcellus shale on the Pennsylvania economy. For comparison, the Barnett shale in Texas is the second largest producing on-shore domestic natural gas field in the United States after the San Juan Basin in New Mexico and Colorado. Over 85% of the 2007 Texas employment impact of Barnett shale was due to exploration, drilling, and pipeline development, while 15% was generated by royalty and lease payments (see http://TxShale.notlong.com).

Table 1. *Forecast of the Potential Impact on Selected Pennsylvania Economic and Demographic Factors of $1 Billion Additional Royalty Income Earned Annually in 2008, 2009, 2010, and 2011 by Pennsylvania Residents*

Factor	2008	2009	2010	2011
Total Employment	7,882	7,908	7,845	7,678
Private Sector, Non-Farm Employment	7,805	7,777	7,668	7,465
Gross State Product ($MM)	$511	$523	$527	$525
Real Disposable Personal Income ($MM)	$1,054	$1,056	$1,069	$1076
Real Disposable Personal Income per Capita	$81	$78	$75	$74
Population	1,484	2,499	3,350	4,045

Source: Analysis of *Pennsylvania REMI Policy Insight Model* (see http://www.remi.com) by staff of Penn State's Workforce Education & Development Initiative (see http://PSU-WEDI-Guide.notlong.com).

Notes: All dollar values expressed as constant 2006 dollars. *Employment* comprises estimates of the number of jobs, full-time plus part-time, by place of work. Full-time and part-time jobs are counted at equal weight. Employees, sole proprietors, and active partners are included, but unpaid family workers and volunteers are not included. *Gross state product* is the dollar value of goods and services sold for personal consumption, government purchases, investment, inventory, and exports net of imports. *Real disposable personal income* equals personal income derived from all sources minus personal taxes and adjusted by the personal consumption price index. Personal Income is the income that is received by all persons from all sources and is calculated as the sum of wage and salary disbursements, supplements to wages and salaries, proprietors' income with inventory valuation and capital consumption adjustments, rental income of persons with capital consumption adjustment, personal dividend income, personal interest income, and personal current transfer receipts, less contributions for government social insurance. *Real disposable personal income per capita* equals real disposable personal income divided by population. *Population* equals mid-year estimates of numbers of persons, including survivors from the previous year, births, special populations (prisoners, military and dependents, and college students), and migrants (economic, international, and retirement).

Information provided in this Economic & Workforce Brief *was forecasted using the* Pennsylvania REMI Policy Insight Model*, a structural economic and demographic forecasting and policy analysis model leased from Regional Economic Models, Inc. (see http://www.remi.com) and applied by Penn State's Office of Economic and Workforce Development. For more information, contact Rose M. Baker (rmb194@psu.edu; 814.865.9919) or David L. Passmore (dlp+irtd@psu.edu; 814.863.2583).*

Research reported in this *Brief* was prepared by Penn State's Workforce Education & Development Initiative, a collaboration between Penn State Outreach and Penn State's College of Education.

This *Brief* results from analysis of Pennsylvania economic and workforce opportunties and issues conducted by the Workforce Assessment Center in Penn State Outreach in collaboration with the Institute for Research in Training and Development, a research unit in Penn State's College of Education.

Contact Rose M. Baker, Program Manager of the Workforce Assessment Center, at rmb194@psu,edu, 814.865.9919 (voice), or 814.865.3589 (fax) for information about additional services available to help plan and evaluate economic and workforce development in the Commonwealth.