

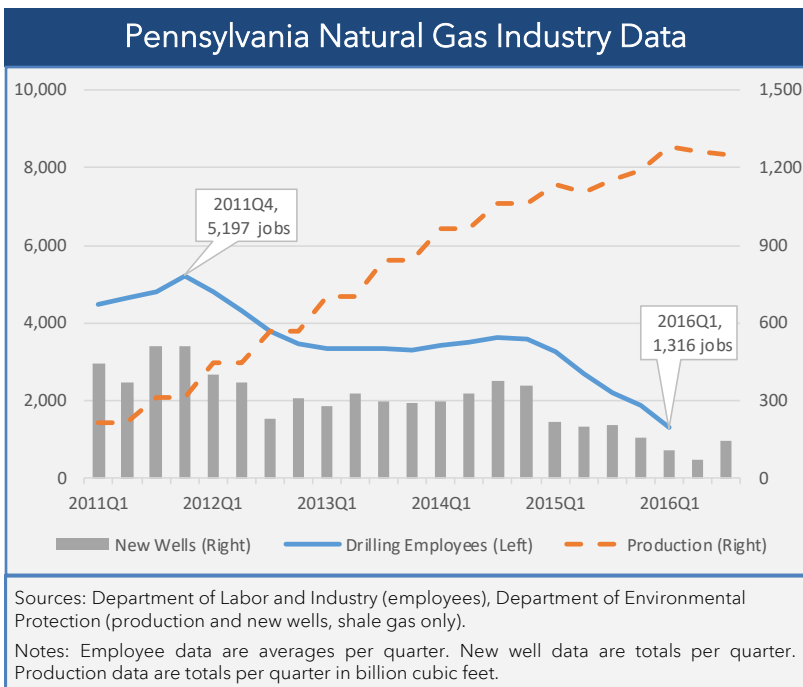


NATURAL GAS DRILLING JOBS DECLINE AS PRODUCTION INCREASES

Employment in the natural gas industry has been declining in Pennsylvania in recent years. Data from the Quarterly Census of Employment and Wages¹ show a significant reduction in natural gas drilling jobs through the first quarter of 2016. Conversely, data from the Pennsylvania Department of Environmental Protection reveal a significant increase in the production of natural gas during the same period.

The chart below shows these trends from the first quarter of 2011 to the third quarter of 2016. The solid blue line represents the number of workers engaged in drilling oil or gas wells. This series peaked in the fourth quarter of 2011 and has since declined by 3,881 jobs (74.7%) through the first quarter of 2016, the last data point for which this series is available. Meanwhile, production of natural gas has more than tripled through the first quarter of 2016, as shown by the orange dotted line. Data through the third quarter remain at the same high level.

Drilling jobs are not necessary to support production from a well. A new well can produce at a high level for at least two years with minimal labor. Once operators have built up an inventory of wells, they can manage production levels by increasing or decreasing output from existing wells. Quarterly counts of newly-drilled wells (grey columns) suggest the utilization of well inventory to increase production. Moreover, improvements in technology have



GENERAL FUND SNAPSHOT			
The Commonwealth collected \$1.99 billion in General Fund revenues for November, an increase of \$179.2 million (9.9%) compared to November 2015. Fiscal year-to-date revenues were \$10.84 billion, an increase of \$160.9 million (1.5%) from the prior year.			
	General Fund	Tax Revenue	Non-Tax Revenue
Nov-16	\$1,987	\$1,941	\$47
Growth	9.9%	8.0%	298.7%
FYTD	\$10,836	\$10,727	\$110
Growth	1.5%	1.6%	-4.5%
Dollar amounts are in millions.			

increased the potential output of newer wells, which allows operators to enhance production with less new drilling.

After the first few years of a well's life, production declines dramatically. A typical shale gas well in Pennsylvania might yield 40% of its output in the first two years. This implies that more new wells will be needed to maintain production at current levels, and demand for drilling employees should increase. However, as shown in the IFO's *Natural Gas Production Report* for the third quarter of 2016,² operators still possess a substantial inventory of wells that have been drilled but remain dormant. Industry analysts predict that, due to the potential of this untapped inventory, the drilling of new wells will not meaningfully increase until at least the middle of 2017, or possibly 2018.³ Although the recent uptick in drilling in the third quarter of 2016 (grey columns) suggests that the employment contraction may have abated, more employment data are necessary to confirm that outcome.

¹ Provided by the Pennsylvania Dept. of Labor and Industry.
² Released on November 30, 2016.
³ Natural Gas Intelligence, "Oil/Gas Analysts Chart Industry's 'Bumpy' Recovery," August 23, 2016.

MONTHLY ECONOMIC INDICATORS

	United States				Pennsylvania			
	Aug-16	Sep-16	Oct-16	Nov-16	Aug-16	Sep-16	Oct-16	Nov-16
Unemployment Rate ¹	4.9%	5.0%	4.9%	4.6%	5.7%	5.7%	5.8%	n.a.
Net Job Gains (000s) ²	176.0	208.0	142.0	178.0	58.9	60.9	51.2	n.a.
Average Gasoline Price ³	\$2.18	\$2.22	\$2.25	\$2.18	\$2.17	\$2.22	\$2.26	\$2.31
Consumer Price Index ⁴	1.1%	1.5%	1.6%	n.a.	0.4%	0.8%	1.3%	n.a.
Retail Sales ⁵	2.5%	2.6%	3.3%	n.a.	-1.4%	0.9%	1.9%	2.8%
Consumer Sentiment Index ⁶	89.8	91.2	87.2	93.8	n.a.	n.a.	n.a.	n.a.
New Building Permits ⁷	5.5%	5.4%	8.9%	n.a.	3.5%	-2.4%	12.3%	n.a.

QUARTERLY ECONOMIC INDICATORS

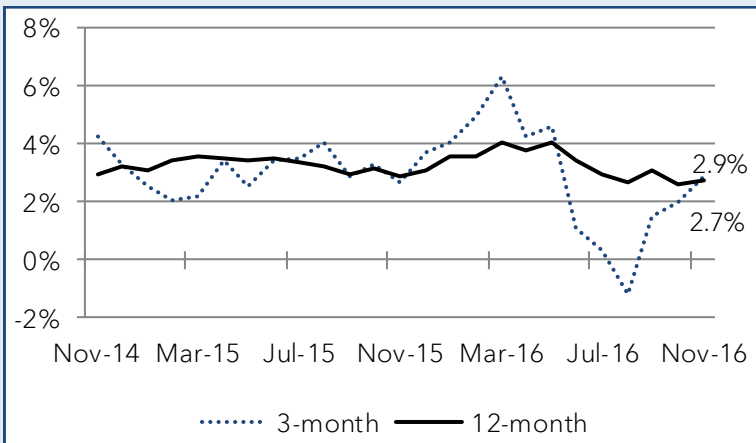
	United States				Pennsylvania			
	2015.4	2016.1	2016.2	2016.3	2015.4	2016.1	2016.2	2016.3
Gross Domestic Product ⁸	0.9%	0.8%	1.4%	3.2%	1.7%	1.5%	n.a.	n.a.
Personal Income ⁹	3.9%	3.6%	3.4%	3.5%	3.5%	2.5%	2.5%	n.a.
Completed Home Sales ¹⁰	2.0%	5.7%	4.0%	0.8%	6.9%	11.0%	11.4%	1.5%
FHFA House Price Index ¹¹	5.9%	6.1%	5.9%	6.0%	3.0%	3.7%	3.2%	4.0%
Student Loan Debt ¹²	\$4,600	\$4,710	\$4,690	n.a.	\$5,310	\$5,450	\$5,430	n.a.
Industrial Electricity Sales ¹³	-5.3%	-1.0%	-3.4%	n.a.	-4.5%	-1.7%	-2.3%	n.a.

Notes:

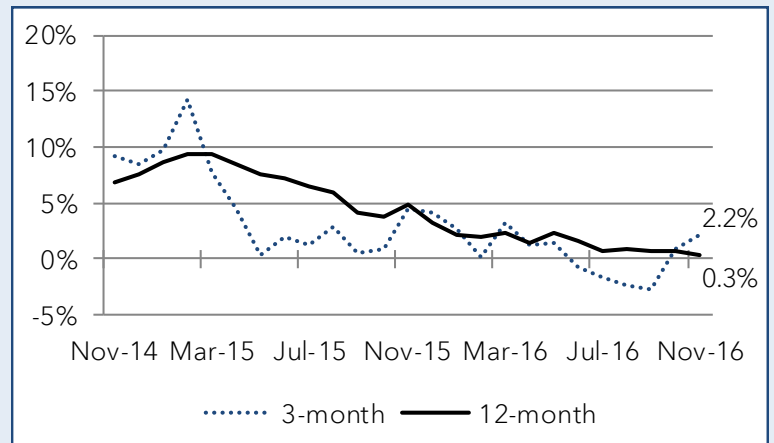
1. Source: U.S. Bureau of Labor Statistics—Survey of Households.
2. U.S.: Increase in payroll employment compared to the previous month. PA: Average year-over-year increase in payroll employment based on latest three months of data. Source: U.S. Bureau of Labor Statistics—Survey of Establishments.
3. Average price for one gallon of regular gasoline. Source: U.S. Energy Information Administration.
4. Annual change in average price level for U.S. and PA-NJ-DE-MD. Data for PA-NJ-DE-MD only published on a bi-monthly basis. For non-release months, values are an interpolation. Source: U.S. Bureau of Labor Statistics.
5. U.S.: Annual growth rate of advance retail sales based on latest three months of data. Includes purchases of gas and motor vehicles. Excludes services. Source: U.S. Dept. of Commerce. PA: Annual growth rate of sales tax revenues based on latest three months of data. Excludes transfers to or from the Enhanced Revenue Collection Account. Source: PA Dept. of Revenue.
6. A diffusion index that reflects consumer optimism. Source: UM—Survey of Consumers.
7. Annual growth of new, privately owned single-housing units authorized for construction based on latest three months of data. Source: U.S. Census Bureau.
8. The quarterly, annualized real growth rate of the economy. Excludes inflation. Source: U.S. Bureau of Economic Analysis.
9. The annual growth rate of personal income. Includes any inflationary gains. Source: U.S. Bureau of Economic Analysis.
10. The annual growth rate of sales of existing single-family properties, townhomes and condominiums. (PA data contain some new properties.) Sources: National Association of Realtors and PA Association of Realtors.
11. The annual growth rate of an index that measures the average price change of residential homes with mortgages purchased or securitized by Fannie Mae or Freddie Mac. Source: Federal Housing Finance Agency.
12. Per capita levels. Levels represent total student loan debt divided by number of consumers with a credit report. For Q4 2015, Pennsylvania has 10.8 million consumers (includes children). Source: Federal Reserve Bank of New York.
13. The annual growth rate in megawatt-hours of electricity sold to industrial customers. Source: U.S. EIA.

SELECT GENERAL FUND TAX REVENUES - ANNUAL GROWTH RATES

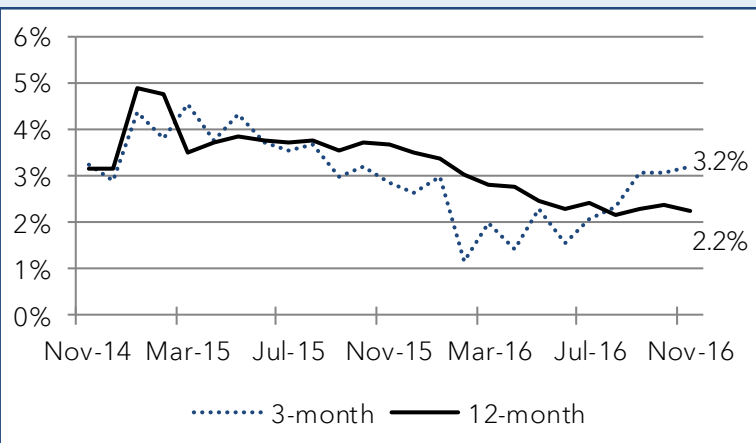
Sales and Use Tax – Non-Motor



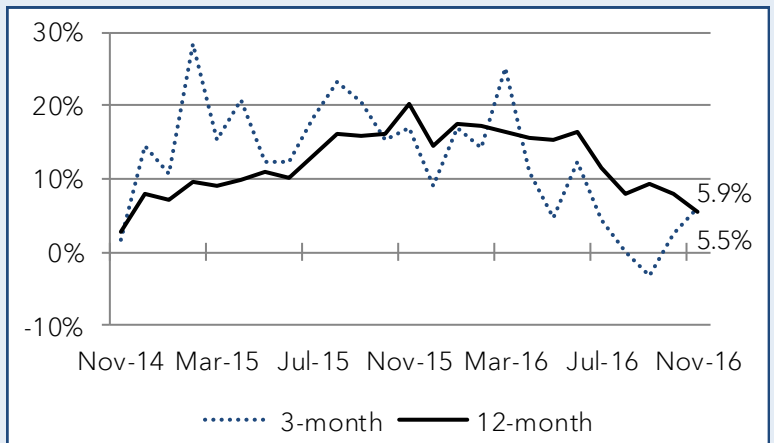
Sales and Use Tax – Motor



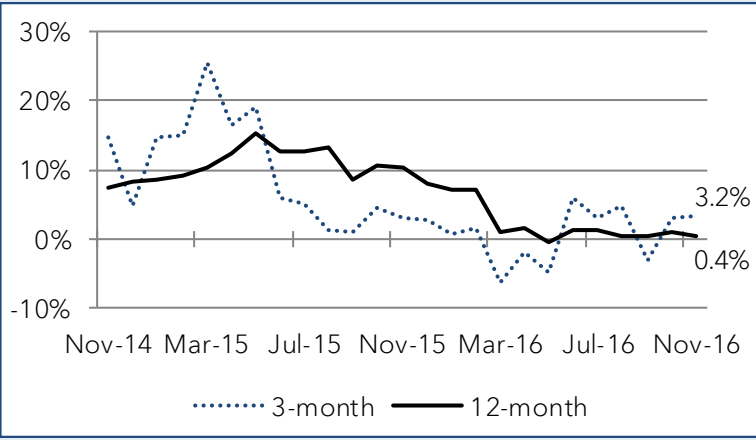
Personal Income Tax – Withholding



Realty Transfer Tax



Corporate Net Income Tax



Technical Notes (for revenue graphs and table on next page):

- ↳ Transfers from the General Fund to the Enhanced Revenue Collection Account were \$35.7 million including: \$13.3 million from gross receipts tax; \$8.0 million from personal income tax; \$7.4 million from sales and use tax; and \$4.6 million from corporate net income tax. (The graphs above correct for these transfers.)
- ↳ Personal income tax withholding collections year-over-year growth rate was impacted by (1) a weekly filer due date that occurred in December last year but occurred in November this year, and (2) a quarterly withholding due date that occurred in November last year but occurred in October this year. (The personal income tax withholding graph above corrects for this difference.)
- ↳ The transfer from sales and use tax to the Commonwealth Financing Authority was \$9.5 million for November. (The sales and use non-motor graph above corrects for this transfer.)

Note: Three- and twelve-month annual growth rates are rolling averages relative to the previous fiscal year.

Pennsylvania General Fund Revenues Summary

Revenue Source	Nov 2016	Nov 2015	Nov 2014	FYTD 2016-17	FYTD 2015-16	FYTD 2014-15	Monthly Growth	FYTD Growth
Total General Fund	\$1,987.1	\$1,807.9	\$1,732.9	\$10,836.4	\$10,675.5	\$10,588.9	9.9%	1.5%
Total Tax Revenue	1,940.6	1,796.3	1,730.4	10,726.6	10,560.7	10,275.3	8.0	1.6
Total Corporation Taxes	31.9	61.6	58.3	807.2	871.4	861.5	-48.2	-7.4
Accelerated Deposits	-0.2	-11.2	-4.4	0.6	1.7	1.6	97.9	-65.3
Corporate Net Income	36.1	47.3	46.1	731.3	757.8	730.1	-23.6	-3.5
Capital Stock & Fran.	4.6	17.9	8.3	31.6	63.0	76.2	-74.4	-49.8
Gross Receipts	-9.7	5.0	7.6	24.8	27.0	29.4	-294.2	-8.1
Utility Property	0.0	0.0	0.0	2.3	2.7	2.0	-55.7	-14.3
Insurance Premium	0.1	1.7	0.2	3.0	4.0	2.4	-92.6	-24.8
Financial Institution	1.0	0.9	0.5	13.6	15.3	19.9	13.8	-11.1
Total Consumption Taxes	931.4	872.7	863.4	4,833.3	4,662.4	4,543.6	6.7	3.7
Sales and Use - Total	773.5	761.3	749.4	4,139.9	4,115.3	3,998.0	1.6	0.6
Non-Motor	665.1	662.4	665.0	3,562.4	3,536.9	3,435.6	0.4	0.7
Motor Vehicle	108.5	98.9	84.5	577.6	578.5	562.4	9.7	-0.2
Cigarette	120.2	79.0	82.1	534.9	395.0	398.8	52.1	35.4
Other Tobacco Products	0.5	0.0	0.0	0.9	0.0	0.0	n.a.	n.a.
Malt Beverage	1.9	2.1	1.8	11.0	11.4	10.8	-7.0	-3.0
Liquor	35.3	30.3	30.1	146.6	140.6	136.0	16.3	4.3
Total Other Taxes	977.3	862.0	808.7	5,086.1	5,026.9	4,870.1	13.4	1.2
Personal Income - Total	865.9	765.2	701.7	4,471.6	4,398.0	4,193.8	13.2	1.7
Withholding	833.3	733.1	677.2	3,862.2	3,745.2	3,624.0	13.7	3.1
Quarterly	19.2	17.8	14.8	478.1	499.1	444.6	7.8	-4.2
Annual	13.4	14.2	9.7	131.3	153.7	125.1	-5.9	-14.6
Realty Transfer	37.8	36.3	25.0	199.3	215.3	175.6	4.0	-7.4
Inheritance	68.5	65.7	65.4	368.4	366.2	449.6	4.3	0.6
Table Games	9.3	7.3	5.3	47.7	41.4	37.1	27.3	15.1
Minor and Repealed	-4.2	-12.5	11.3	-0.8	6.0	14.1	66.6	-114.1
Total Non-Tax Revenue	46.5	11.7	2.5	109.7	114.8	313.6	298.7	-4.5
State Store Fund Transfers	0.0	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.
Lic., Fees & Misc.	38.7	4.2	-4.6	70.9	77.4	276.9	824.5	-8.4
Licenses and Fees	6.4	5.1	4.7	31.5	29.9	27.4	26.5	5.2
Miscellaneous	32.3	-0.9	-9.3	39.4	47.5	249.6	n.a.	-17.0
Treasury	1.5	-10.0	0.2	8.7	3.1	5.5	114.9	179.4
Escheats	28.4	7.4	-17.5	-14.5	13.9	-14.5	284.7	-204.0
Other Miscellaneous	2.4	1.7	8.0	45.2	30.4	258.7	39.3	48.6
Fines, Pen. & Int. - Total	7.8	7.5	7.1	38.8	37.4	36.7	4.5	3.7

Note: Dollar amounts in \$ millions. Growth rates computed from the same time period from the previous year.