

# Back to the Future:

## Can West Virginia Avoid the Resource Curse?

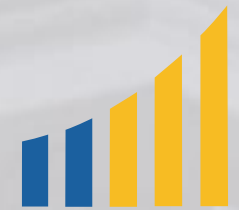
Appalachian Justice Symposium – West Virginia Law Review

February 24, 2017 – West Virginia University College of Law– 1:10-2:40 pm

Ted Boettner, Executive Director

[wvpolicy.org](http://wvpolicy.org) @WVCBP

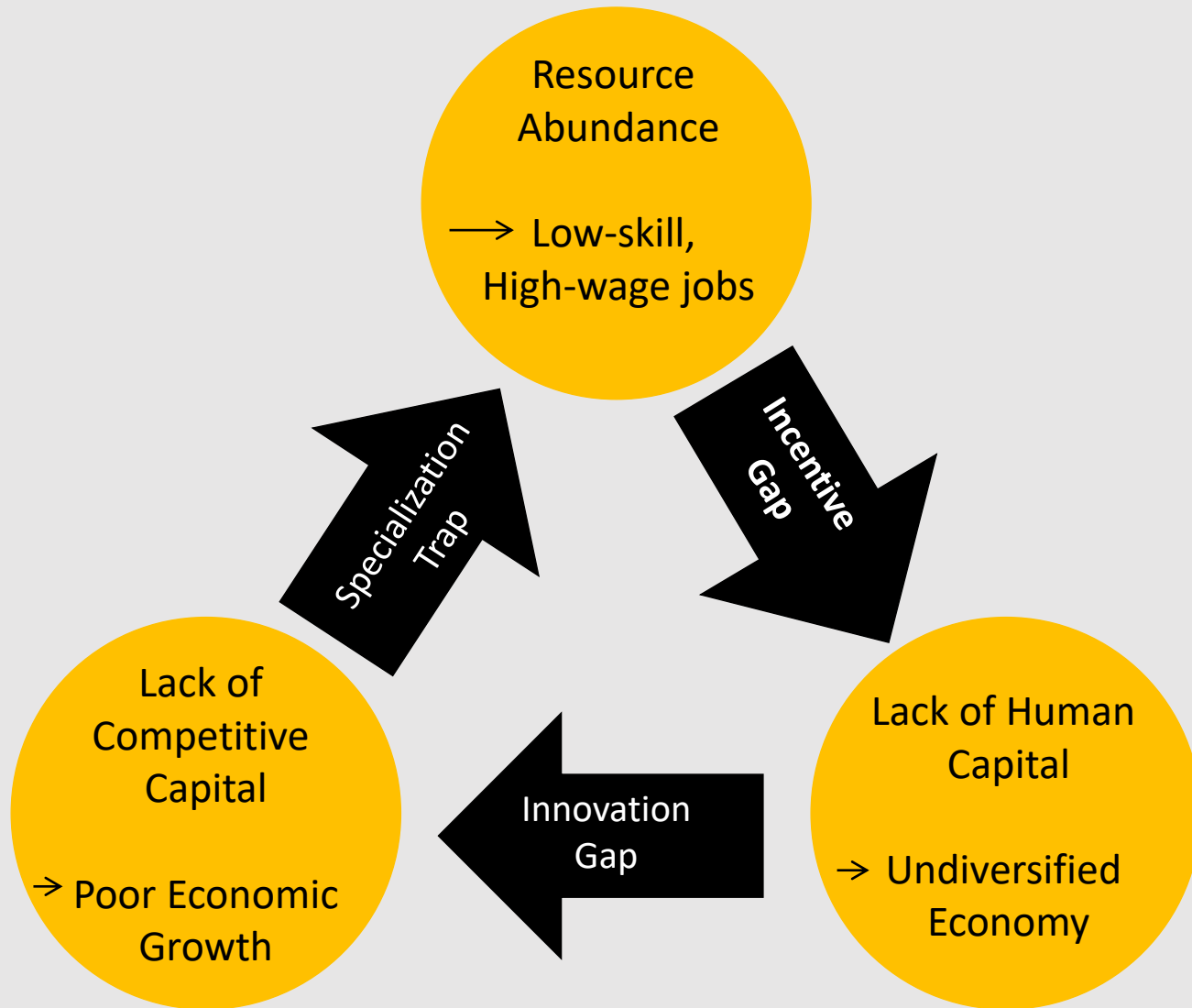
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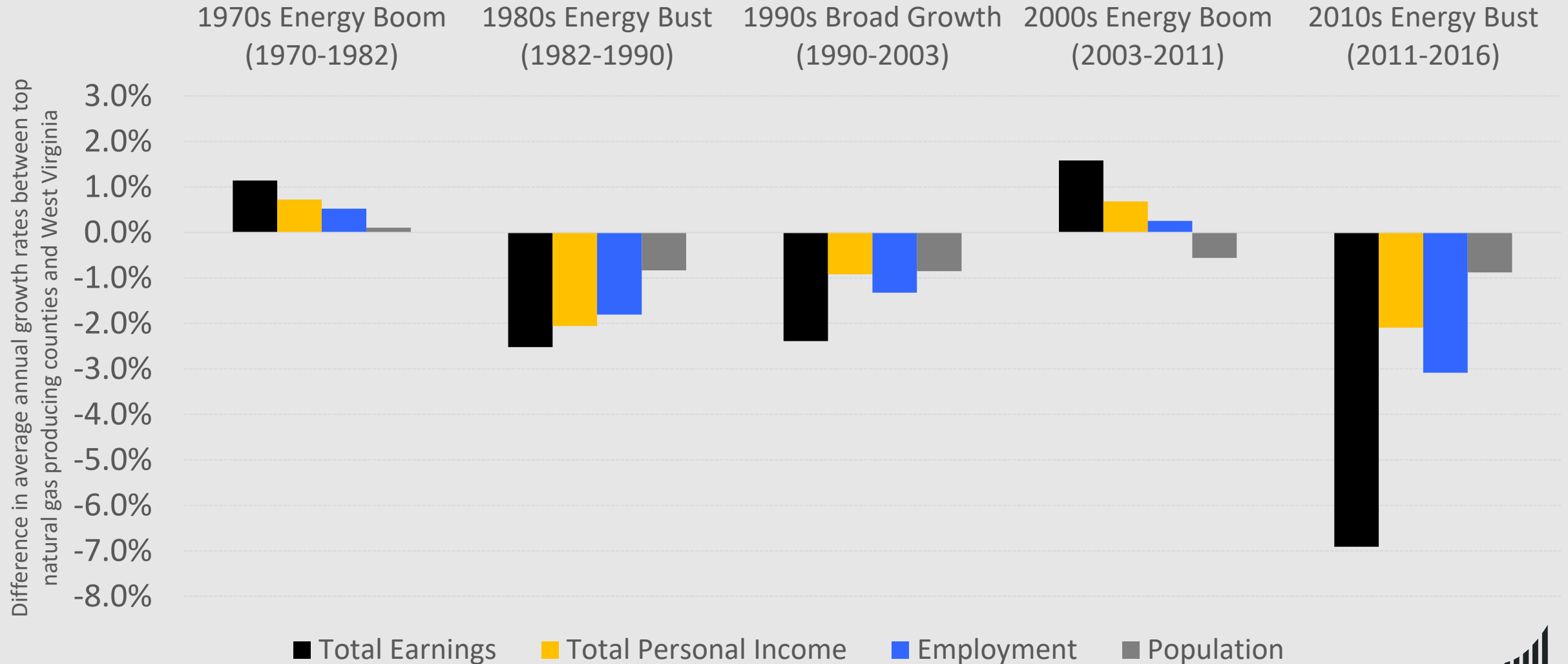
# Problems with Natural Resource-Based Economies



- Communities most tied to the energy boom of the 1970s/early 1980s did not fare as well as otherwise equal communities. (Haggerty et al, 2014, *Journal of Energy Economics*)
- Resource booms are not linked to faster long-run growth. (Jacoben and Parker, 2014)
- Increase in coal revenues (0.5 units) as a share of personal income is associated with decline in income growth rates (0.7%). (Douglas and Walker, 2014)
- “Resource-dependent counties exhibit more anemic economic growth, even after controlling for state-specific effects, socio demographic differences, initial income, and spatial correlation.” (James and Aadland, 2010)
- “Natural resource abundance decreases investment, schooling, openness, and R&D expenditure and increases corruption, and we show that these effects can fully explain the negative effect of natural resource abundance on growth.” (Papyrakis and Gerlaugh, 2007)
- Remoteness of natural resource extraction areas also a factor. Some research does not find a “resource curse” but a “resource drag” – slower growth in energy sectors. (A.James, 2014 & G.Davis, 2011)
- “We do not find strong evidence of a resources curse, except that coal mining has a consistent inverse association with measures linked to population growth and entrepreneurship, and thereby future economic growth.” – (Betz et al, 2015, *Energy Economics*.)
- Overreliance on energy for economic growth is “likely to have limited and temporal success.” (Weinstein et al, 2017, *Resource Policy*)
- Some studies show positive impact of Marcellus Shale drilling on employment and earnings (Komarek, 2016) and some show no impact on per capita income (Paredes et al, 2015)

# West Virginia

## Mining Counties Have Seen Decades of Underperformance

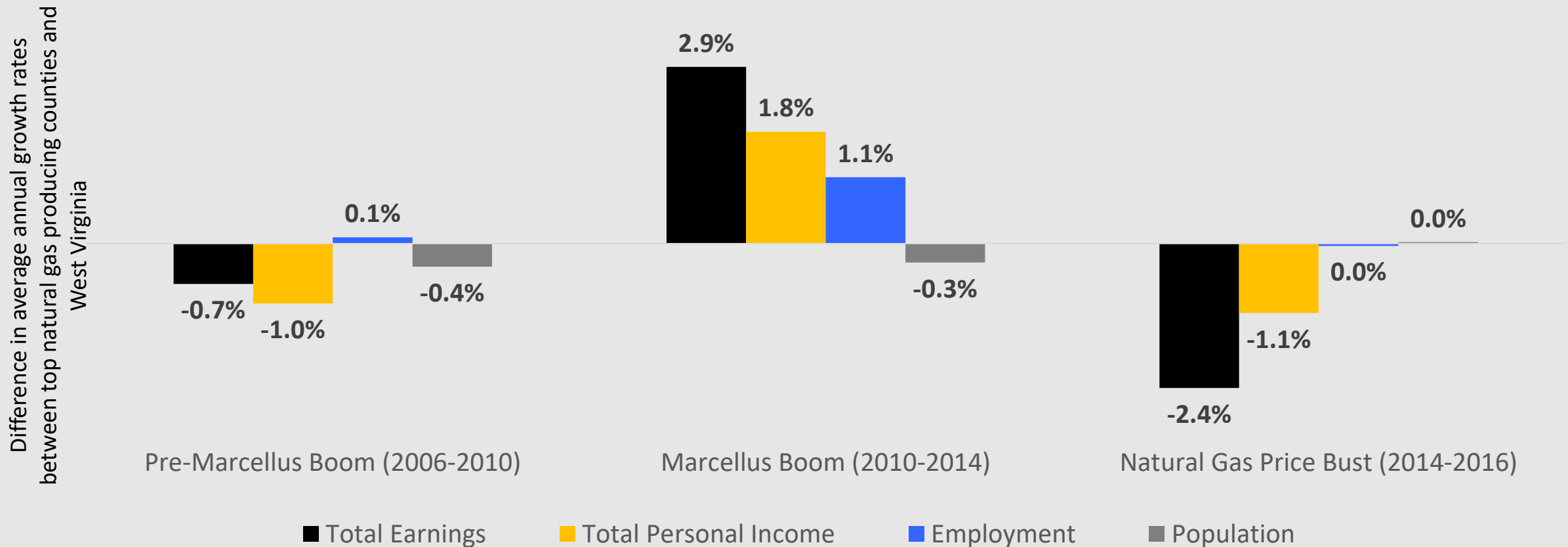


Source: Boettner and O'Leary, "Booms and Busts: The Impact of West Virginia's Energy Economy," West Virginia Center on Budget and Policy, 2010 (Updated December 2017)

# West Virginia

## Economic Performance of WV's Major Gas Counties has been Mixed

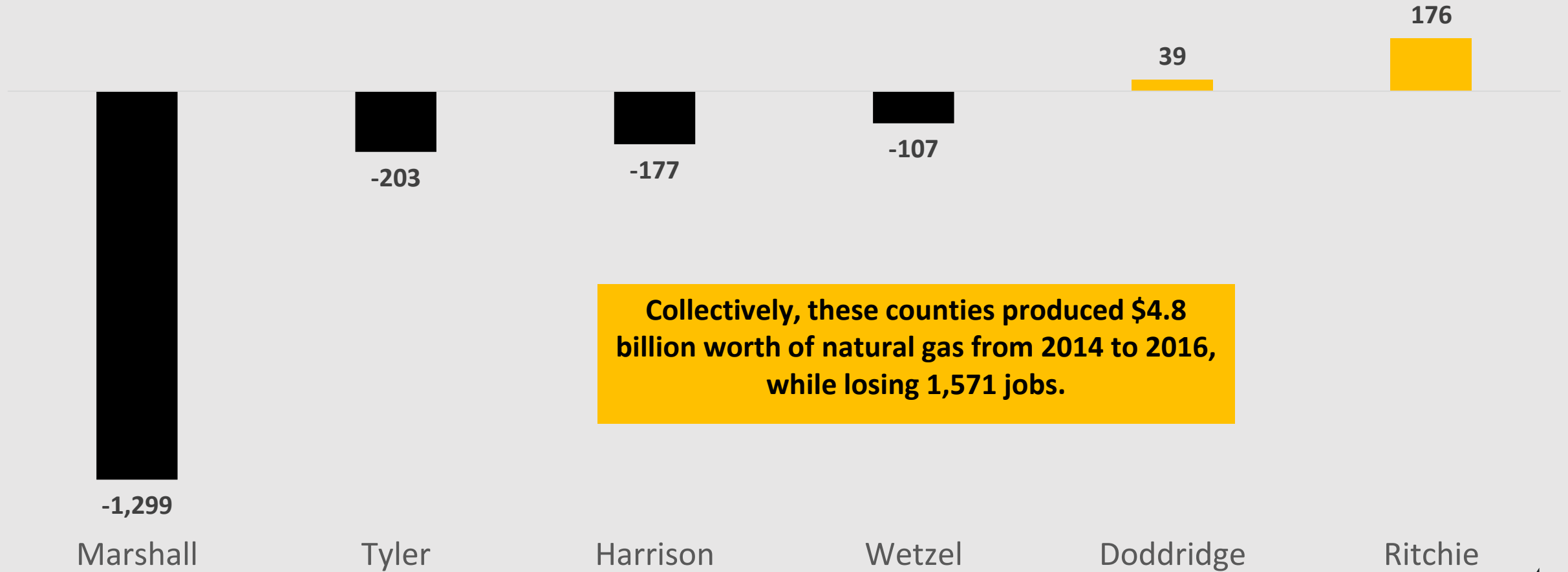
After outperforming the state during a surge in gas production, the economic performance of WV's gas producing counties has fallen off with falling gas prices.



# West Virginia

## Top Gas Producing Counties Have Lost Jobs Since 2014

Change in Total Nonfarm Employment, 2014-2016



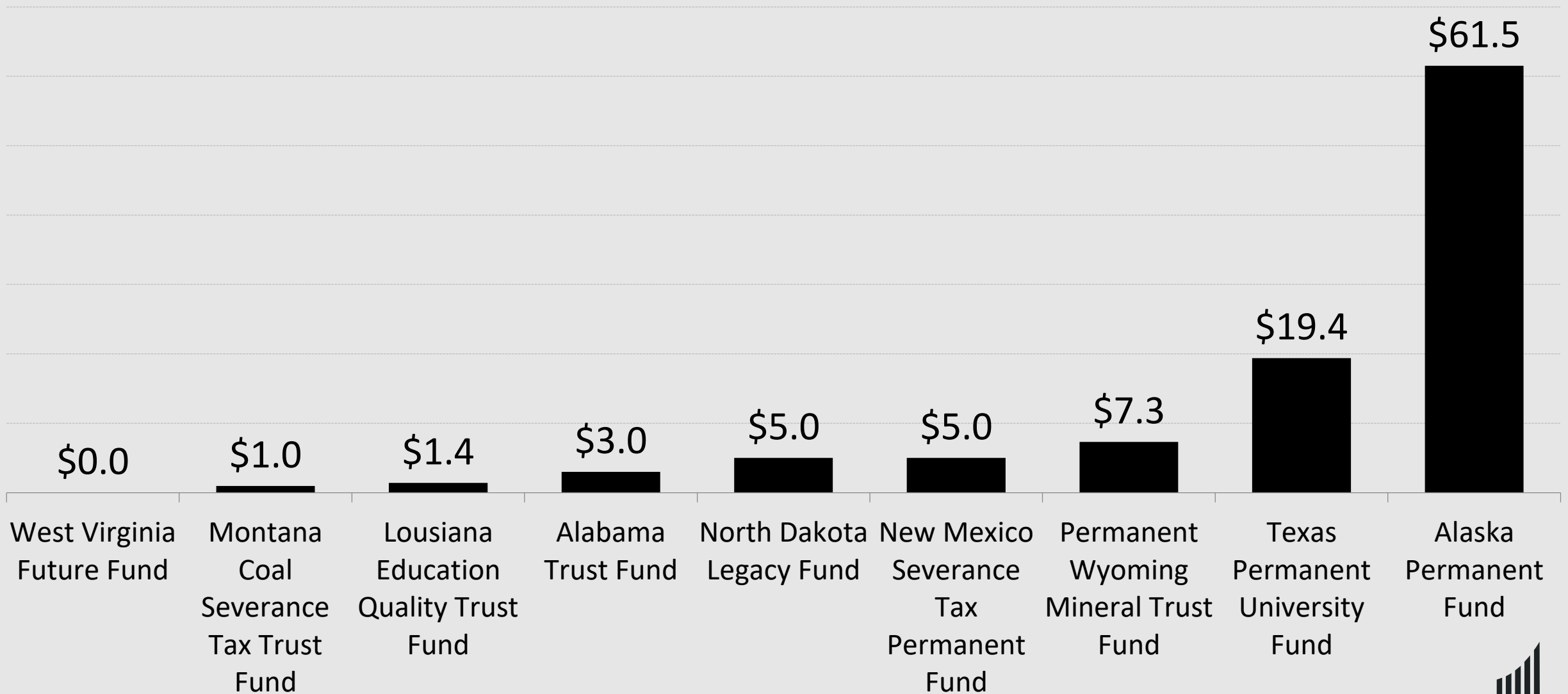
Collectively, these counties produced \$4.8 billion worth of natural gas from 2014 to 2016, while losing 1,571 jobs.

# Observations on Resource-Based Economies and West Virginia

- Boom and bust economies are not conducive to most businesses because of the instability of energy prices. Volatile energy prices or unsustainable resources can make the boom go bust. Diverse economies are more stable and promote faster long-term growth.
- The shale industry is very capital intensive, with high GDP per worker. Therefore, tax subsidies are not effective means of job creation.
- Difficult to assess resource curse in current shale boom because it has not been long enough.
- Better governance (transparency, long-term planning, etc.) can mitigate problems with the resource curse.
- Use natural resource revenues to help diversify the economy and build long-term sustainable wealth.
- Protect natural assets and the environment from the harms caused during the booms.
- Ensure that negative externalities caused by natural resource extraction are paid by the industry. Don't let industry shift costs into the future as we have in the past.
- West Virginia should raise severance tax and dedicate revenue to a permanent severance tax trust fund to fund economic diversification and development.

# U.S. States with Permanent Natural Resource Funds

## Natural resource funds by size (in billions)



Source: WVCBP survey of state permanent mineral trust fund

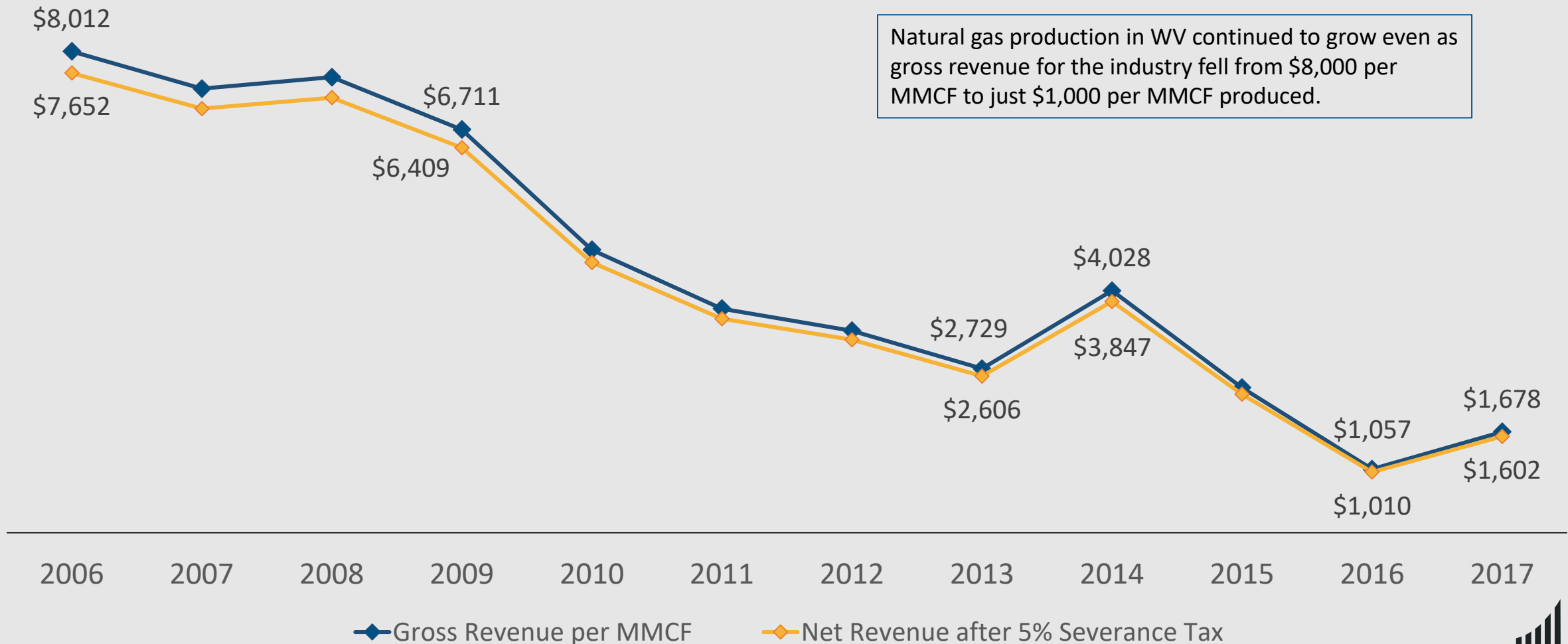
# APPENDIX



# West Virginia

## Natural Gas Production Grows Even as Value Falls

Natural Gas Gross Revenue per MMCF produced, 2006-2017



# Observations on Natural Resource Curse

- The Natural Resource Curse (also known as the Paradox of Plenty) refers to the paradox that countries or states with an abundance of natural resources, specifically point-source non-renewable resources like minerals and fuels, tend to have less economic growth and worse development outcomes than countries and states with fewer natural resources.
- Negative effects/causes: weak governance, revenue volatility, less development, crowding out of human capital ("Dutch Disease"), less incentive for educational attainment, less economic diversity, and economic instability (boom-bust).

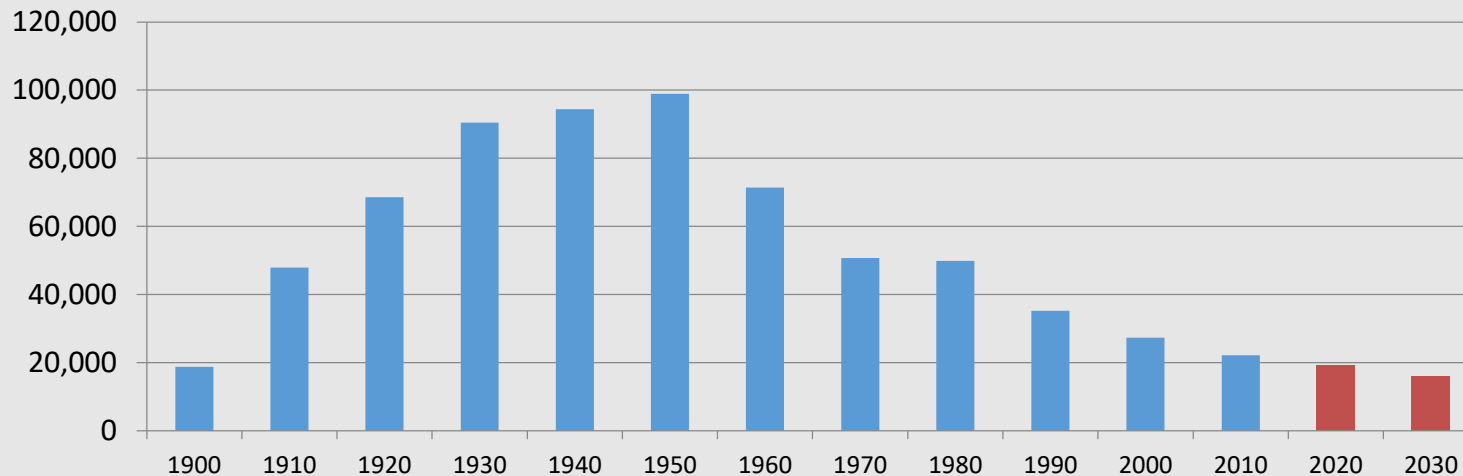
# CASE STUDY: McDowell County, West Virginia

“Without local or regional markets, the economic structure of the mountains was solely dependent upon exterior demand....This condition of **growth without development** placed the mountains in a highly vulnerable relationship to the larger market system....Despite the vast natural wealth within its borders, the southern mountains remained comparatively poor—not because it was backward, but because its wealth enriched the modernizing centers in other parts of the country”

Ronald D. Eller *Miners, Millhands and Mountaineers: Industrialization of the Appalachian South, 1880–1930*, 229)



### Population of McDowell County, WV



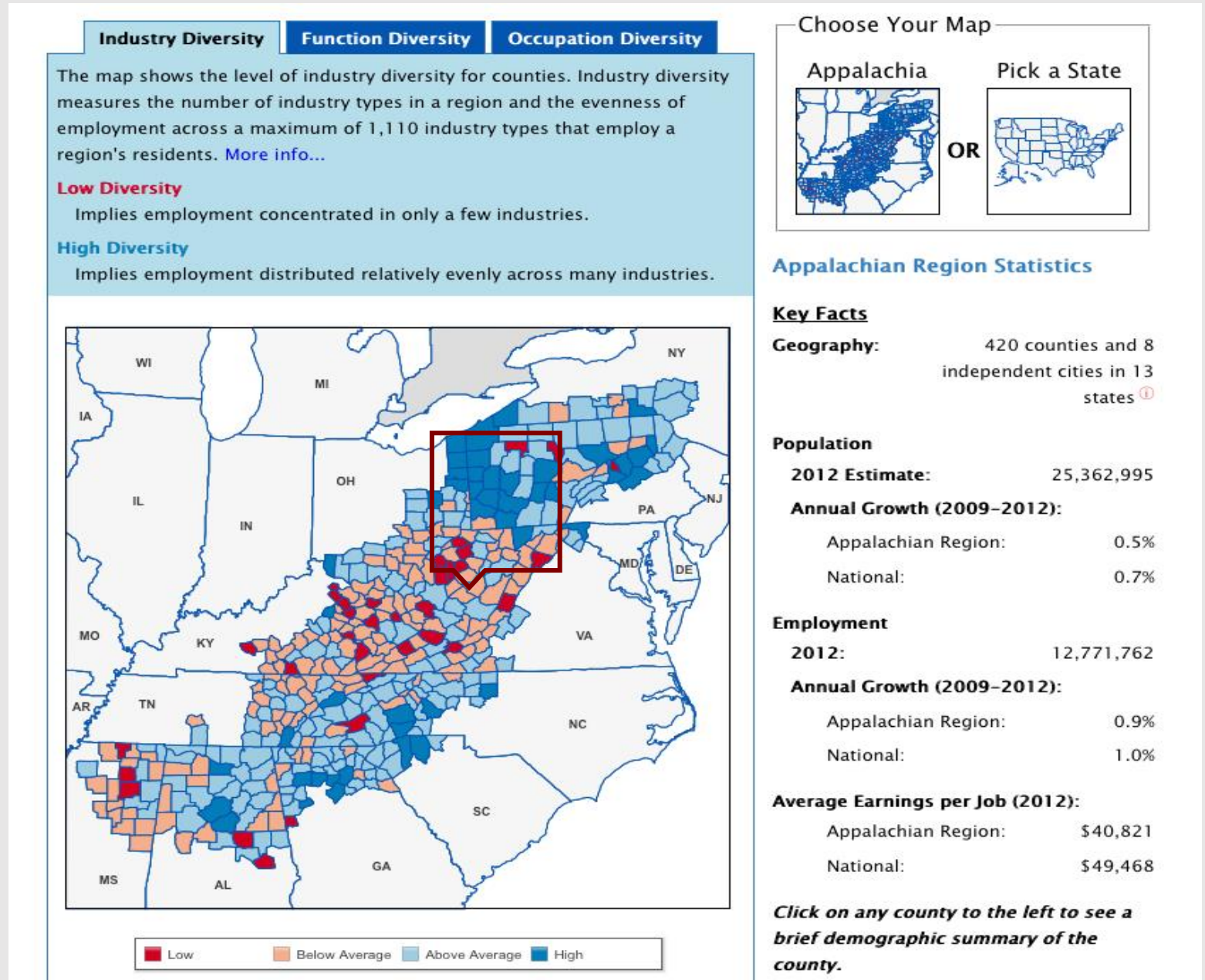
Source: U.S. Census Bureau



# Eastern PA More Economically Diverse, OH & WV Less Diverse

## Economic Diversity Promotes:

- Stability
  - Weather Economic Cycles
  - Less prone to boom-bust cycles
- Long-term growth
- Adaptability



Source: Troy Mix, "Economic diversity & lesson for economic development practice," University of Delaware, Presentation to Shale Symposium, Wheeling, WV, March 19, 2015

Retrieved from: <https://www.clevelandfed.org/~media/Files/Events/2015/2015ShaleSymposiumDocs/panel-3-mix.pdf?la=en>

<http://economicdiversityinappalachia.creconline.org/>

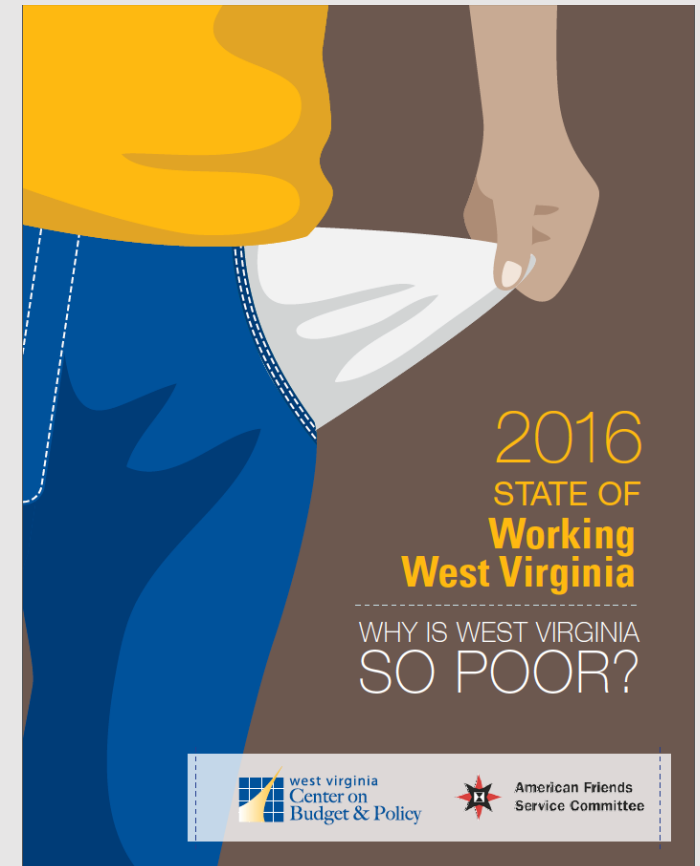
# Resource Curse & Per Capita Real Personal Income Growth

“Our results would support the theory of a resource curse where a reliance on extraction of natural resources ultimately lowers overall economic well-being of a state.”

Table 4  
Regression Results

	Coefficient	Standard Error
<b>Knowledge Variables</b>		
Percent of Population with High School Degree	0.0670124***	0.0179071
Percent of Population with College Degree	0.0089088***	0.00152
Patent Capital Per Capita	3.27E-06***	6.98E-07
<b>Public Finance Variables</b>		
Corporate Tax Rate	0.0000127***	3.58E-06
Effective Individual Tax Rate	0.000026***	7.18E-06
Highway Stock Per Capita	1.428203	0.8821894
State Capital Outlays Per Capita	-0.0267446	0.0249909
<b>Industrial Structure Variables</b>		
Manufacturing Income as a Percent of Total Personal Income	-0.0006643	0.0005312
Farming Income as a Percent of Total Personal Income	-0.0000605***	8.64E-06
Mining Income as a Percent of Total Personal Income	-0.0000703***	8.86E-06
<b>Labor Market Variables</b>		
Labor Force Participation	0.126095***	0.032784
Right-To-Work	0.007437	0.0102481
Constant	5.134715***	0.2564557
Prior Log Real Per Capita Personal Income	0.5214964***	0.0239803
Observations	1913	

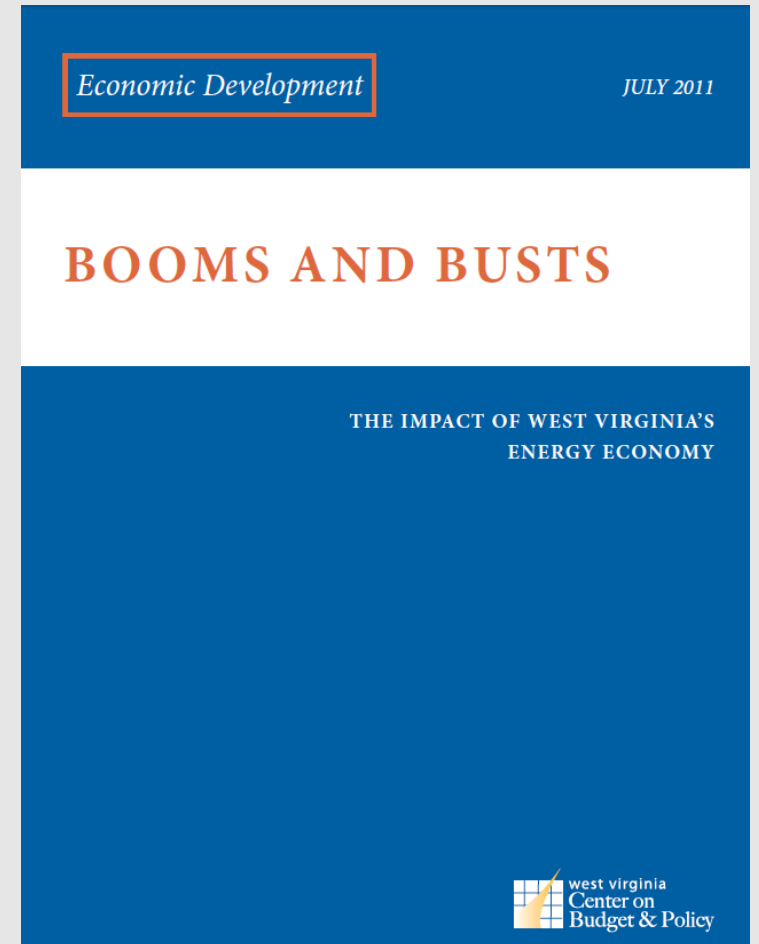
All independent variables are lagged five years.



# West Virginia

## The Legacy of Booms and Busts in Mining Counties

- Median household income lower
- Family poverty rates higher
- Health outcomes worse
- Lower education levels
- More likely to be “At-Risk” or Distressed”
- Higher income inequality
- Less economically diverse



# A Softer Landing

## Creating a Permanent Natural Resource Trust Fund

- ◆ **Permanent natural resource trust funds** are attempts by governments to convert non-renewable natural resource (oil, natural gas, coal, and other minerals) wealth into a renewable source of wealth for future generations.
- ◆ Most **permanent natural resource trust funds** are invested similar to pension funds and a portion of the fund is used each year to financially bolster the state's economy through strategic investments (e.g. education, infrastructure, and tax relief).
- ◆ These funds are “**permanent**” because the principal of the fund is usually constitutionally protected (inviolable).

# Why do states create permanent natural resource trust funds?

- ◆ Converts a depleting finite resource (coal, oil, natural gas) into a renewable source of wealth for state programs and future generations.
- ◆ Without a permanent fund, the economic benefit from natural resource extraction declines along with the natural resources themselves.
- ◆ Helps even out the booms and busts of energy-based states.
- ◆ Greater political leverage and autonomy.
- ◆ By building financial assets, it can boost a state's credit rating.
- ◆ Severance tax is highly exportable with little impact on production.
- ◆ Lowers future tax responsibilities and builds public trust.
- ◆ To diversify and expand local economies, to invest in human capital and infrastructure, and to mitigate externalities.



# Funds

1. Set clear fund objective(s) (e.g., saving for future generations; stabilizing the budget; earmarking natural resource revenue for development priorities).
2. Establish fiscal rules—for deposit and withdrawal—that align with the objective(s).
3. Establish investment rules (e.g., a maximum of 20 percent can be invested in equities) that align with the objective(s).
4. Clarify a division of responsibilities between the ultimate authority over the fund, the fund manager, the day-to-day operational manager, and the different offices within the operational manager, and set and enforce ethical and conflict of interest standards.
5. Require regular and extensive disclosures of key information (e.g., a list of specific investments; names of fund managers) and audits.
6. Establish strong independent oversight bodies to monitor fund behavior and enforce the rules.



<https://www.brookings.edu/research/permanent-trust-funds-funding-economic-change-with-fracking-revenues/>

<http://ccsi.columbia.edu/work/projects/natural-resource-funds/>



States with Permanent Severance Tax Trust Funds					
	Alaska	Montana	New Mexico	North Dakota	Wyoming
<b>Trust fund name(s)</b>	Alaska Permanent Fund	Coal Severance Tax Trust Fund	Severance Tax Permanent Fund	Legacy Fund	Permanent Mineral Trust Fund
<b>Year Created</b>	1976 by constitutional amendment	1976 by constitutional amendment	1976 by constitutional amendment	2010 by constitutional amendment	1976 by constitutional amendment
<b>Market Value</b>	\$54.4 billion (May 14, 2015)	\$919 million (June 30, 2014)	\$4.7 billion (March 31, 2015)	\$3.2 billion (March 31, 2015)	\$7.2 billion (March 31, 2015)
<b>Source of Revenue</b>	At least 50 % of mineral-related (oil) income (royalties) and legislative appropriations	50% of coal severance collections on coal	12.5% of severance tax collections on coal, oil, natural gas, and other minerals	30% of oil production tax revenues	1.5% severance tax on coal, oil, and natural gas and statutory 1% of severance taxes
<b>Annual Tax Inflows</b>	\$779.5 million (FY 2014)	\$37.2 million (FY 2014)	\$164 million (FY 2014)	\$1.7 billion (FY 2013-15)	\$379 million (FY 2014)
<b>Investment Return Rate</b>	15.5% (FY 2014)	4.1% (FY 2014)	6.75% (FY 2014)	6.64% (FY 2014)	12.67% (FY 2013)
<b>Asset Allocation</b>	Stocks, bonds, real estate, infrastructure, other	In-state investments, loans, bond pool, other	Equities, real estate, fixed income, and state investments	Fixed income, equities, real estate	Equities, fixed income, cash, other.
<b>Amount Distributed</b>	\$1.2 billion (FY 2014)	\$28.8 million (FY 2014)	\$170 million (FY 2014)	\$0	\$395 million (FY 2013)
<b>Disbursement Formula</b>	Average investment income earned on 5 previous years	Various formulas	4.7% of 5-year average market value	All interest earnings	5% of 5 year average market value
<b>Use of Earnings</b>	Citizen dividends, inflation-proofing, and general fund	General fund, education, infrastructure, remediation, and economic development	General fund, education, infrastructure, and economic development	General fund (beginning FY 2018)	General fund
<b>Action required to disperse principal</b>	Public Vote	3/4 of legislature	Public Vote	Public Vote	Public Vote

Other States with Natural Resource Funds			
	Texas	Louisiana	Alabama
<b>Trust fund name(s)</b>	Permanent University Fund	Kevin R. Reilly, Sr. Louisiana Education Quality Trust Fund	Alabama Trust Fund
<b>Year(s) created</b>	1876 by constitutional amendment	1986 by constitutional amendment	1985 by constitutional amendment
<b>Market Value</b>	\$17.5 billion (December 31, 2014)	\$1.3 billion (June 30, 2014)	\$2.7 billion (FY 2014)
<b>Mineral Source of Revenue</b>	100% of oil, gas, and mineral revenues from U of Texas lands (primarily royalties)	Royalty Income from natural gas production on Outer Continental Shelf in Mexico subject to 8 (g) settlement with federal government	32 percent of oil and gas revenues
<b>Annual Mineral Revenues</b>	\$1.1 billion (FY 2014)	\$20.6 million (FY 2014)	\$65 million (FY 2014)
<b>Investment Return Rate</b>	16.92% (FY 2014)	11.35% (FY 2014)	8.48% (FY 2014)
<b>Asset Allocation</b>	Equities, natural resources, fixed-income, real estate	Corporate bonds, equities, securities, and short-term funds	Equities, real estate, fixed income, and state investments
<b>Total Investment Income</b>	\$2.3 billion (FY 2014)	\$93 million (FY 2014)	\$144 million (FY 2014)
<b>Amount Distributed</b>	\$877 million (FY 2014)	\$73 million (FY 2012)	\$230 million (FY 2014)
<b>Disbursement Formula (Withdraws)</b>	4.75-5.0% of 12-quarter average of Fund's net value	5 percent of the average annual market Value over three prior 3 fiscal years	4.7% of 5-year average market value
<b>Use of Earnings</b>	University of Texas (2/3) and Texas A&M (1/3)	50% to Pre-kindergarten through 12 <sup>th</sup> grade (BESE) and 50% to higher education (Regents)	General fund, conservation, local governments, senior services, education.
<b>Action required to disperse principal</b>	Public Vote	Public Vote	Public Vote