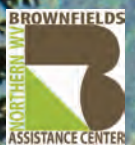


Potomac Highlands Region of West Virginia

AN ECONOMIC PROFILE

 West Virginia University
JOHN CHAMBERS COLLEGE OF
BUSINESS AND ECONOMICS
Bureau of Business and
Economic Research

 REGIONAL RESEARCH INSTITUTE

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Executive Summary

West Virginia’s Potomac Highlands region—consisting of Grant, Hardy, Hampshire, Mineral, and Pendleton counties—experienced a significant economic disruption in 2015 when the Sugar Grove Naval Station closed its doors. The Naval Station, which was designed to monitor communications transmissions for the military and National Security Agency, made a significant contribution to the Pendleton County economy, and to the broader Potomac Highlands region. This study is part of a series of reports from West Virginia University researchers at the Bureau of Business and Economic Research, the Regional Research Institute, and the Brownfields Assistance Center that evaluate the Potomac Highlands region’s economy and provide a comprehensive set of action plans to provide direction for the region’s policy makers to enhance the area’s economic growth. In this report, we examine the economic impact of the Sugar Grove Naval Center’s closure and provide a profile of the broader economy of the Potomac Highlands region.

ECONOMIC IMPACT OF THE CLOSURE OF THE SUGAR GROVE NAVAL STATION

- The closure of Sugar Grove Naval Station eliminated 158 jobs at the naval station, with an additional 58 jobs in secondary industries—such as restaurants, grocery stores, retail stores, etc.
- Total economic losses, were approximately \$22 million, with about \$16 million coming from income losses at Sugar Grove.
- Approximately \$561 thousand in state and local tax revenue was lost to the Naval Station’s closure.

POPULATION AND DEMOGRAPHICS

- The number of residents who were age 65 and older grew nearly 50 percent during the previous 16-year period, compared with a 24-percent growth rate for the state as a whole.
- The share of the population in prime working age (age 25-54) was more than 5 percentage points below the state average in 2016.
- Potomac Highlands single-family housing starts per capita were approximately twice that of the state average between 2013 and 2017.
- The proportion of the region’s population with a bachelor’s degree or higher is approximately 13 percent, which is 7 percentage points lower than the state average. The share of population with at least an associate’s degree is similarly 7 points below the state average.

EMPLOYMENT, LABOR FORCE, AND INCOME

- Total employment in the Potomac Highlands region peaked in 2007 at about 24 thousand jobs and have been on a declining trend since that time, ending at less than 22,500 jobs in 2017.
- The region’s labor force participation rate in 2016 was 52.1 percent, almost 2 percentage points lower than the state average of 53.8, which is the lowest in the nation.
- At 22 percent of total employment, the Potomac Highlands region’s manufacturing base was more than three times the state average of 7 percent.
- Nearly 10 percent of jobs in the region are in the agricultural industries—including farming and animal production—compared with about 2 percent for the state as a whole.
- Per capita income adjusted for inflation in the Potomac Highlands in 2016 was approximately \$33,300 compared with \$36,600 in the state as a whole.

ECONOMIC FORECAST

- We forecast that total employment in the Potomac Highlands region will increase at an average annual rate of 0.4 percent through 2023.
- Manufacturing and construction are expected to increase in the region, in part due to the continued highway development of Corridor H and the new residents who can bring new demand into area.
- The professional and business service sector is expected to grow at a strong level during the first two years of the forecast before leveling off during the remaining years.
- Inflation-adjusted per capita income in the Potomac Highlands is projected to increase at an average annual rate of around 1.6 percent through 2023, which will lag state and national averages.
- Population in the Potomac Highlands region is expected to stabilize in the outlook period as the forecast calls for the region's population to settle at around 84 thousand residents.

ECONOMIC DEVELOPMENT INFRASTRUCTURE

- While construction on Corridor H promises to improve road access to the Potomac Highlands region, road connectivity to outside the region is still relatively limited.
- Despite the limited transportation system, the Potomac Highlands does have a relatively mobile workforce. Commuting patterns indicate that 45 percent of all workers in the region commute outside their home county for work—primarily to larger metropolitan areas of Cumberland, MD, and Winchester, VA.
- Cell phone service is limited in much of the Potomac Highlands region, particularly in Pendleton County, where large portions of the land area have little to no coverage.
- The Potomac Highlands is underserved by broadband internet, with nearly two-thirds of census blocks in the region having no access to internet speed above 25 Mbps.

1 Introduction

West Virginia's Potomac Highlands region—consisting of Grant, Hardy, Hampshire, Mineral, and Pendleton counties—experienced a significant economic disruption in 2015 when the Sugar Grove Naval Station closed its doors. The Naval Station, which was designed to monitor communications transmissions for the military and National Security Agency, made a significant contribution to the Pendleton County economy, and to the broader Potomac Highlands region. Employment estimates show that the station's closure led to a reduction of more than 150 jobs when considering both military and civilian workers. These jobs also paid wages that were above the median for the county, and thus supported employment in other industries. The large campus on the base has largely sat vacant since the closure, but as of 2018 it is now under development for use as a treatment site for people recovering from drug addiction. The new ownership has said they expect to ultimately employ 200 people on the site.

This report is part of a series from West Virginia University researchers at the Bureau of Business and Economic Research, the Regional Research Institute, and the Brownfields Assistance Center that evaluate the Potomac Highlands region's economy and provide a comprehensive set of action plans to provide direction for the region's policy makers to enhance the area's economic growth. In this report, we examine the economic impact of the Sugar Grove Naval Center's closure and the broader economy of the Potomac Highlands region. Specifically, we begin in Section 2 with an estimate of the economic loss to the region as a result of the closure of the Sugar Grove Naval Station. In Section 3 we examine a wide variety of economic indicators to assess the current state of the region's economy, followed by our forecast for the region in Section 4. Lastly, in Section 5, we describe the need for additional infrastructure development.

2 Economic Impact of the Closure of the Sugar Grove Naval Station

Prior to its closure, the Sugar Grove Naval Station provided a significant contribution to the Potomac Highlands economy. Workers at the base and their families were active members of the community and their household spending supported local businesses. In this section, we assess the economic impact of these job losses on the Potomac Highlands region in order to understand the broader economic impact of the base closure.

2.1 Methodology

To estimate the economic impact of the Sugar Grove Naval Station's closure, we apply a detailed model of the Potomac Highlands economy that outlines how trade-flows among industries interact with key economic indicators such as employment, income, output, and tax revenue.¹ The expenditures associated with the station's operations are referred to as the direct economic impact. However, the total economic impact of the naval station is not limited to the direct impact, but also includes the secondary economic impacts accrued as those initial direct expenditures were re-spent throughout the rest of the economy. The total impact of the closure includes the loss in the economy of both the direct and secondary expenditures.

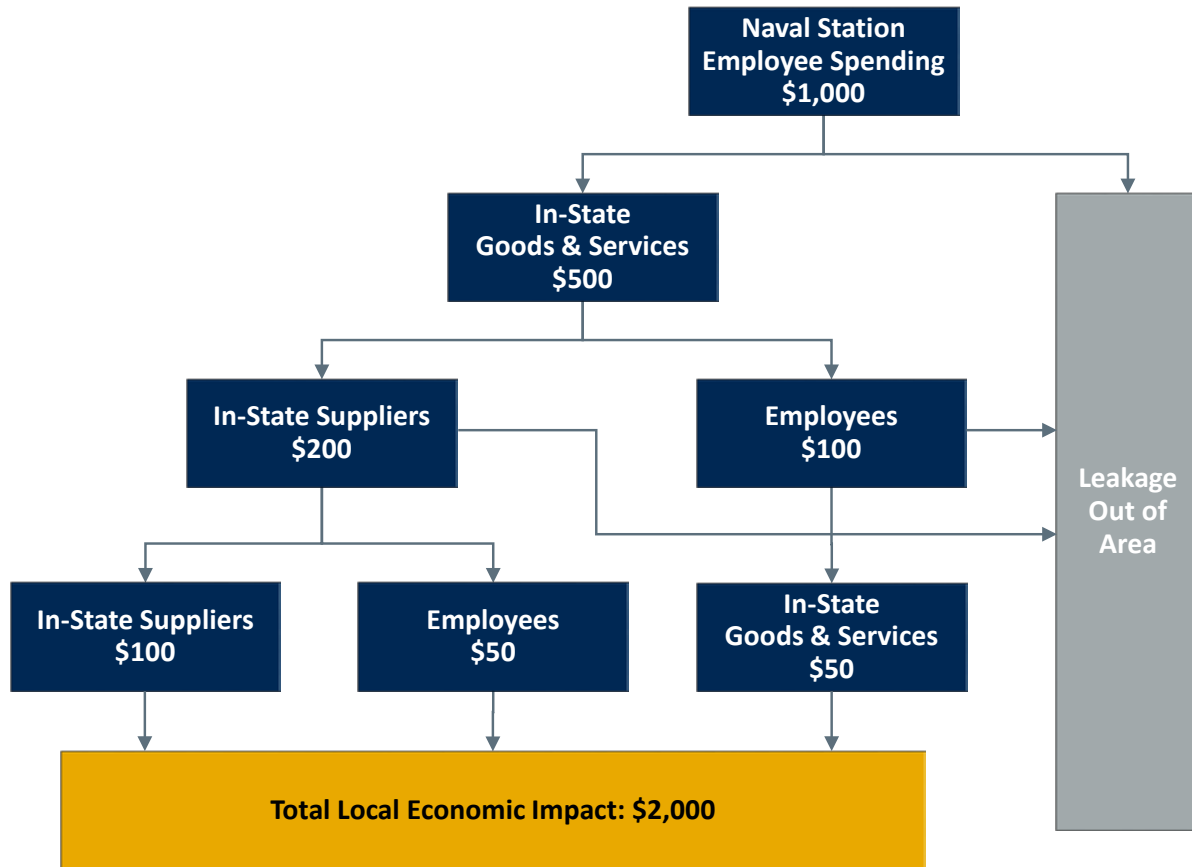
For this analysis, we consider only the impact that stems from the reduction in expenditures associated with employee compensation at the naval station itself. We assume that all personnel stationed at the base and civilian workers, lived in the Potomac Highlands region prior to its closure, and they spent the majority of their income in the region.² This loss in household spending in the region reduced support for local businesses, which in turn would have decreased their production, and their subsequent suppliers reduced their production, etc. This reduction in economic activity is referred to as induced impacts, as it results from the loss of household expenditures associated with the naval station.

The induced impacts together with the direct impact form what is known as the "multiplier effect." The original decline in the economy from the naval station's lost employee expenditures was re-circulated multiple times through the rest of the economy. At each stage, some of the expenditures "leaked" out of West Virginia as they were spent outside of the state. These multipliers and leakages are depicted in Figure 1 using hypothetical figures.

¹ This study was conducted using the IMPLAN modeling software, an industry-standard input-output model of the economy. More information about IMPLAN can be found at <http://www.implan.com>.

² Data on the residential location of Sugar Grove workers is unavailable. Thus we use the standard assumption in economic impact analysis that residence is the same location as place of work.

Figure 1: Economic Impact Flow



2.2 Economic Impact

To estimate the economic impact of the Sugar Grove Naval Station’s closure, we first estimate the loss of household spending in the region that came as a result of the station’s employees no longer working there. This reduction in household spending is the direct impact of the station’s closure. To estimate the reduction in household spending, we use data provided by IMPLAN to calculate the average federal military employment in Pendleton County for the years 2010-2014. We then compare these figures with employment in 2016 after the base had fully closed. As shown in Table 1 under Direct Impact, we estimate that the closure of the Naval Station eliminated 158 workers in the region. We then multiply this employment number by the average compensation for federal military employees to estimate the reduction in household income. We estimate that the total loss to the region’s household spending totaled \$15.8 million.

This household spending reduction from the Naval Station’s workers is estimated to result in an economic loss in secondary industries of approximately \$6.5 million, for a total reduction in output of \$22.3 million. We estimate these expenditures resulted in a loss of 58 jobs in the secondary economy for a total employment reduction of 216 jobs with compensation of \$17.4 million. Total tax reductions are estimated at \$560 thousand, with about \$180 thousand coming in secondary impacts.

Table 1: Total Economic Impact of the Sugar Grove Naval Base Closure

Type of Impact	Direct	Indirect and Induced	Total
Output (\$, millions)*	15.8	6.5	22.3
Employment (jobs)	158	58	216
Employee Compensation (\$, millions)	15.8	1.6	17.4
Tax Revenue (\$, thousands)†	381	180	561

* Output is equal to employee compensation because other operational expenditures are spent outside the region.
† Tax revenue includes sales, personal income, corporate net income, and property taxes.

As shown by this analysis, the Sugar Grove Naval Station provided a sizable amount of economic activity in the Potomac Highlands region. For every dollar spent by the Naval Station, an additional 28 cents was generated in secondary industries for a total economic multiplier in the regional economy of about 1.3. Pendleton County was particularly affected by the closure of the Naval Station, since the station was located there. The 158 jobs at the station represented about 5 percent of employment in the county prior to the closure. Also, the income paid to those workers constituted about 18 percent of total employee compensation. By any measure, this was a significant loss to the regional economy. However, the redevelopment of the station should help ameliorate these economic impacts over time.

3 Economic Profile

We now turn to examining the broader economic trends of the entire five-county Potomac Highlands region. Long-term trends show that the Potomac Highlands region has grown faster than the state as a whole, but its population is also aging at a faster rate. The region also has a somewhat lower educational attainment than the state. Economic trends indicate that the region has a higher proportion of jobs in the manufacturing sector, which is a positive for the region. However, negative factors such as low labor force participation may lead to underperformance over time.

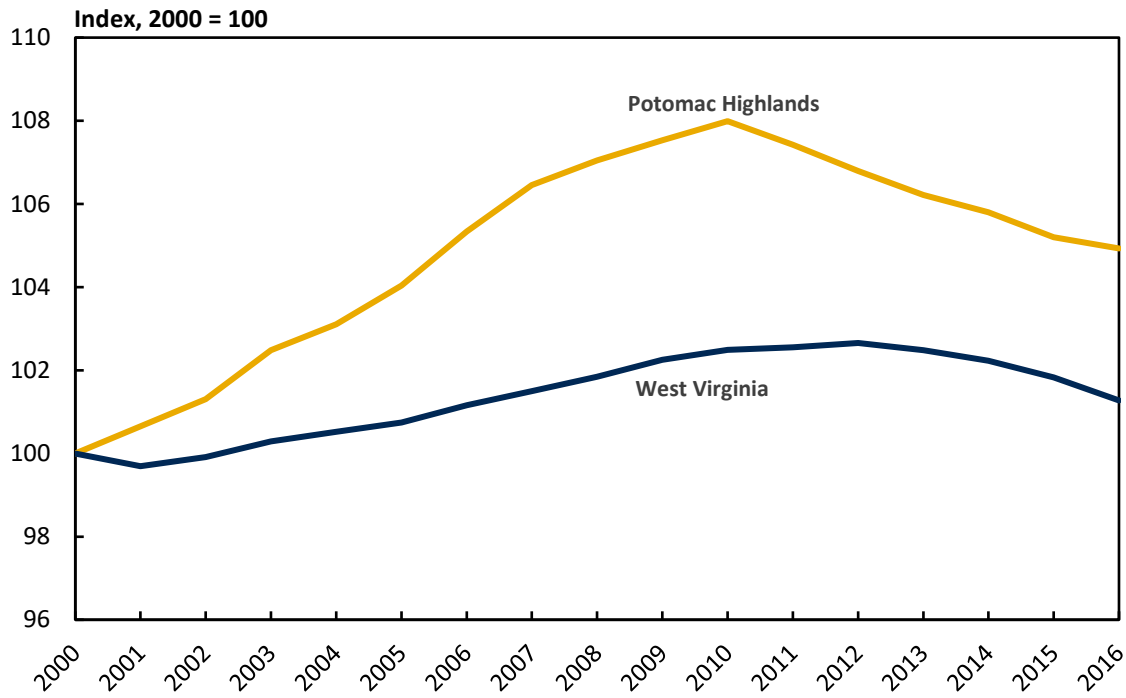
In section 3.1, we begin with a discussion of demographic data for the region, including population, age, and housing growth. In section 3.2, we discuss economic indicators, such as employment, labor force participation, and income. Finally, in section 5, we discuss the critical economic development attributes of transportation and telecommunications.

3.1 Population and Demographics

Population in the Potomac Highlands region grew at a faster pace than the state as a whole during the last 16 years. As shown in Figure 2, the region grew 8 percentage points between 2000 and 2010 before falling back about 3 percentage points over the next six years. During the same period, West Virginia as a whole grew 1 percent. The population growth was not even among the five counties that compose the region. Hampshire and Hardy counties grew at a rate above 10 percent, while Pendleton County's population fell by 14 percent during this period.

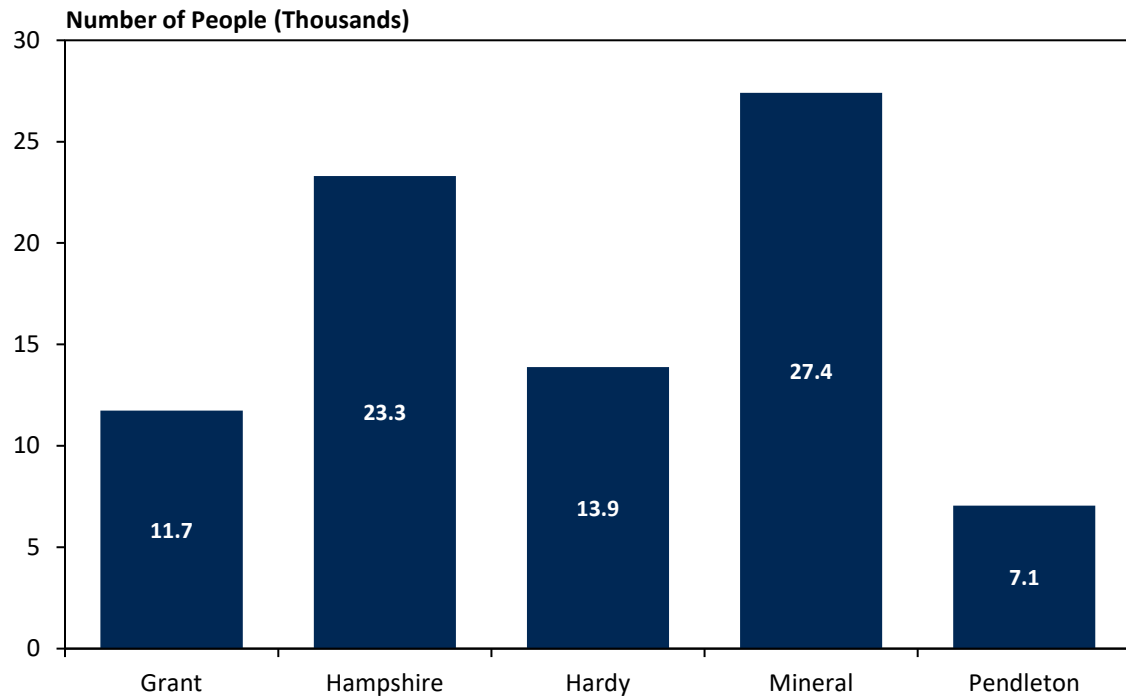
The counties within the Potomac Highlands vary considerably in total population (see Figure 3). Mineral County has the largest population in the region at more than 27,400 residents, placing it above the median county population size for the state. Pendleton County is one of the smallest counties in the state with a population just above 7,000 residents. Grant, Hampshire, and Hardy counties have approximately 11,700, 23,300, and 13,900 residents respectively.

Figure 2: Total Population Growth



Source: US Census Bureau

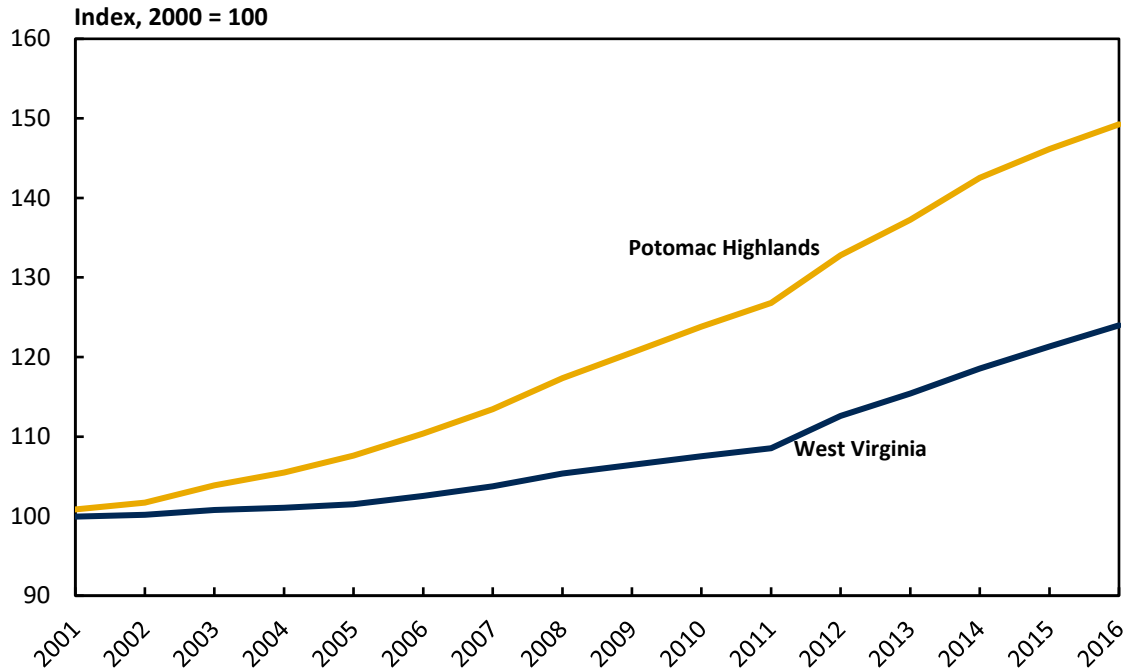
Figure 3: Total Population by County, 2016



Source: US Census Bureau

The Potomac Highlands region’s population is aging at a faster rate than the state as a whole (see Figure 4). The number of residents who were age 65 and older grew nearly 50 percent during the previous 16-year period, compared with a 24-percent growth rate for the state as a whole. At 65 percent, Hampshire County had the largest increase in its older population, followed closely by Grant and Hardy counties at 61 and 55 percent respectively. Pendleton County had the lowest growth rate in 65 and older population at a nearly 30-percent growth rate. This likely reflects the slower population growth in the county overall.

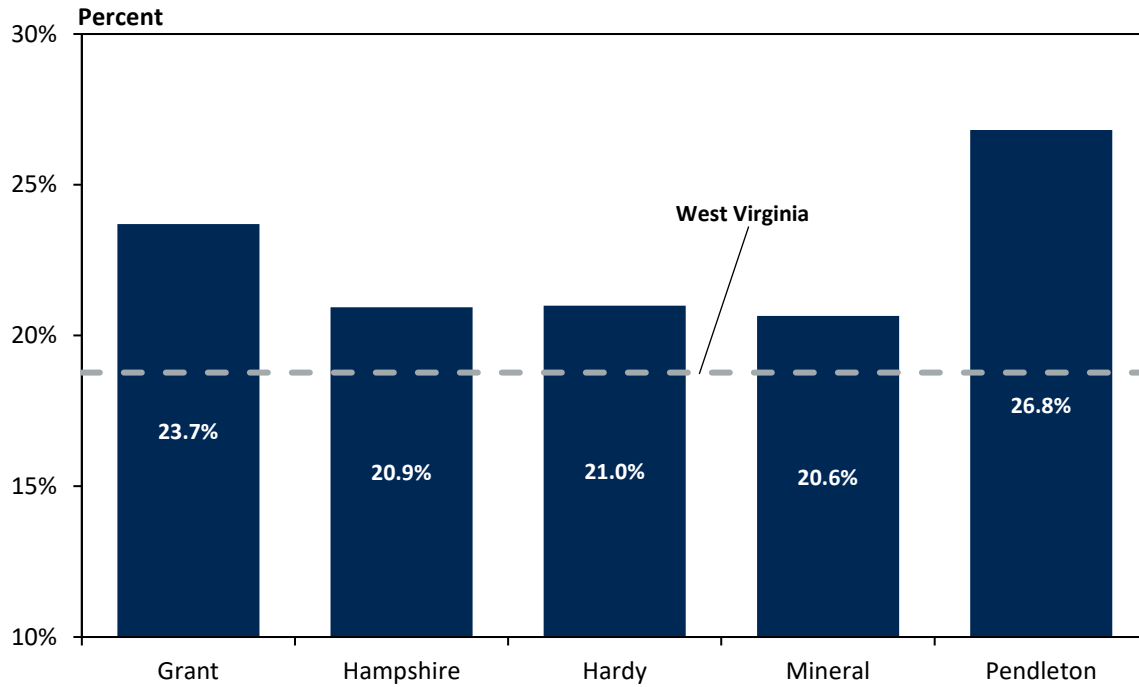
Figure 4: Population Growth Age 65 and Older



Source: US Census Bureau

All of the counties in the Potomac Highlands region have relatively high shares of population above the age of 65 (see Figure 5). Pendleton County's 65-and-older population share in 2016 was the highest in the region, at nearly 27 percent of the population, which was about 8 percentage points higher than the state average. Grant County's 65-and-over share was almost 24 percent, while the other three counties came within 2 percentage points of the state average.

Figure 5: Share of Population 65 Years and Older by County



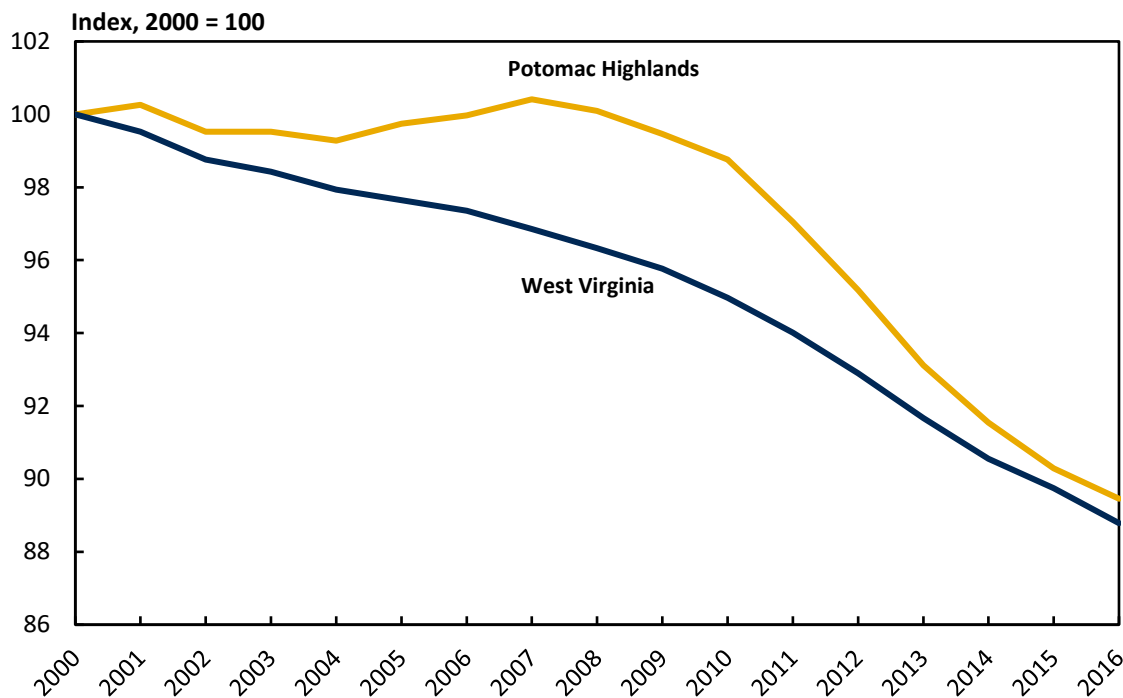
Source: US Census Bureau

While the region’s over-65 population was growing, prime working-age population (those between the ages of 25-54) fell by about 10 percentage points between 2000 and 2016 (Figure 6). However, the decline was felt primarily in the period between 2010 and 2016, after the Great Recession began affecting employment in the region. West Virginia’s prime working-age population fell more consistently over this period, ending about 11 percentage points below 2000 levels.

The decline in prime working-age population was uneven across the five counties that make up the Potomac Highlands region. Pendleton County’s 25-54 population fell by about a third between 2001 and 2016, declining from about 3,400 workers in this age group to about 2,200. As shown in Figure 7, the county’s prime working-age population share was less than 32 percent in 2016, more than 5 percentage points below the state average of 37 percent. In Mineral and Grant counties, the prime working-age population fell by more than 10 percent over this period ending in 2016 at 35 and 36 percent respectively. Hardy County’s 25-54 population share matched the state average at 37 percent, while Hampshire County’s prime working age share was slightly lower at 36.6 percent.

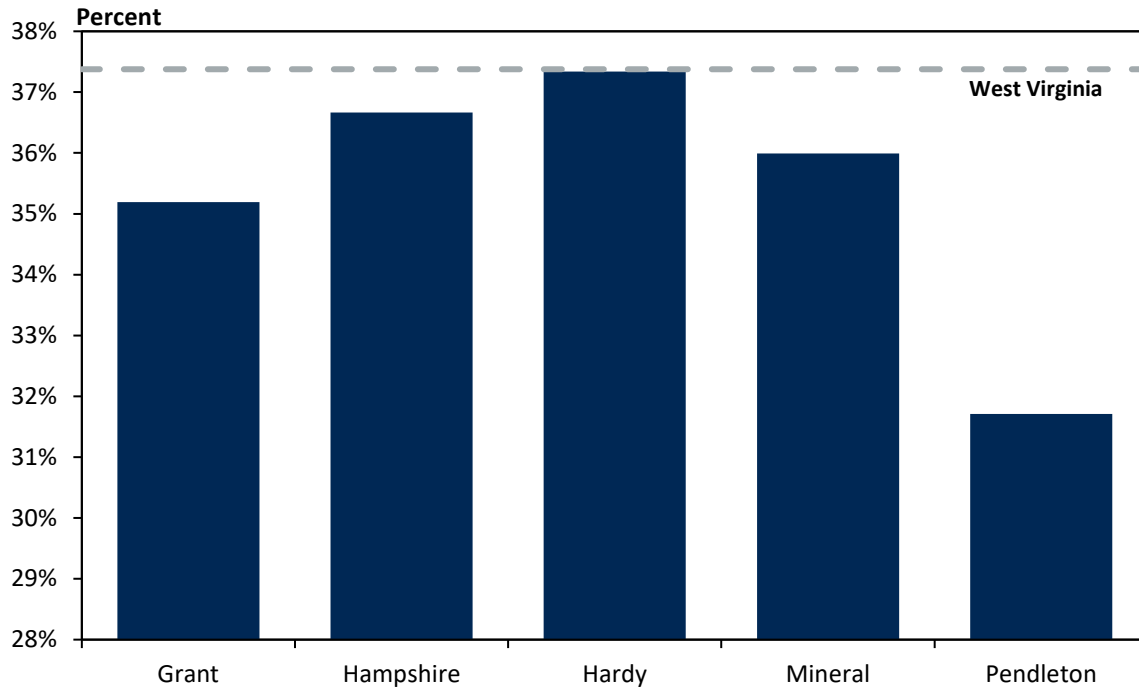
The increase in older population has pushed the median age in the region well above the state median, as shown in Figure 8. Mineral County had the lowest median age at 43.3 years, which was about 1.4 years older than the state median of 41.9. Pendleton County had the highest median age at nearly 50 years of age.

Figure 6: Prime Working Age (25-54) Population Growth



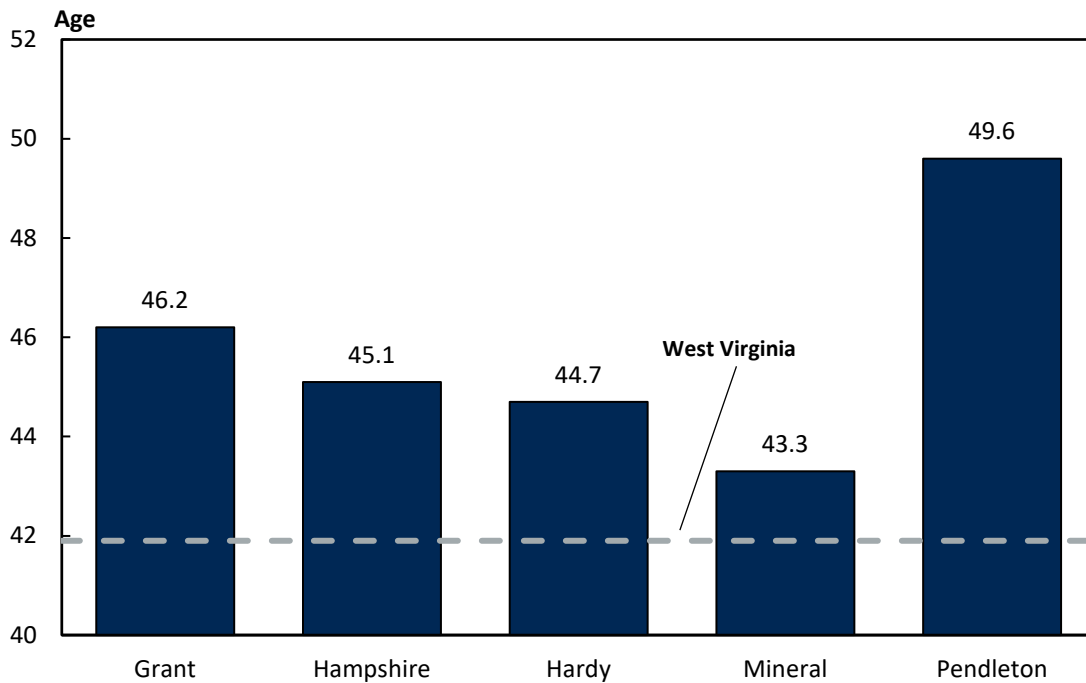
Source: US Census Bureau

Figure 7: Prime Working Age (25-54) Share of Population by County, 2016



Source: US Census Bureau

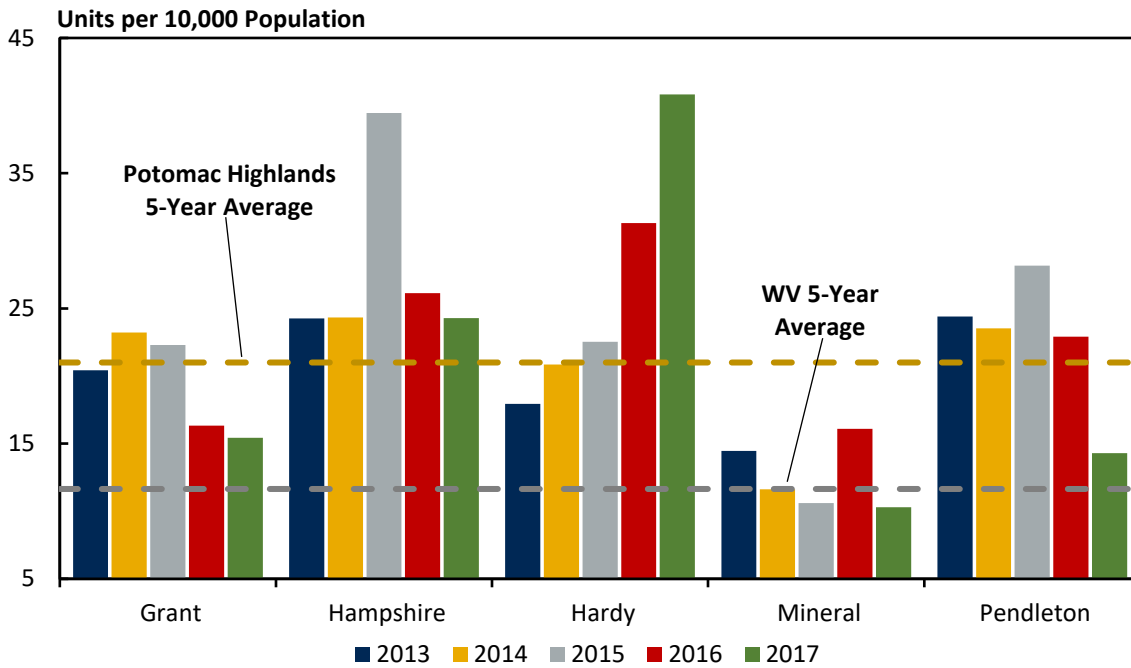
Figure 8: Median Age, 2016



Source: US Census Bureau

The Potomac Highlands had a higher rate of residential single-family housing starts³ on a per-capita basis than the state as a whole, as shown in Figure 9. Hampshire and Hardy counties' growing populations led to increases in new housing units with housing starts well above the regional and state average. Housing starts in Hampshire County averaged about 27.7 units per 10,000 population, peaking at more than 39 units in 2015. Hardy County's housing starts more than doubled over the last five years, moving from about 18 units in 2013 to nearly 41 units in 2017, a gain of 128 percent. Mineral County's housing starts averaged about 12.6 units between 2013 and 2017, which is around the state average of 11.6. Grant and Pendleton counties stayed fairly even across the five-year span at around the regional average of 21 units per 10,000 population.

Figure 9: Housing Starts

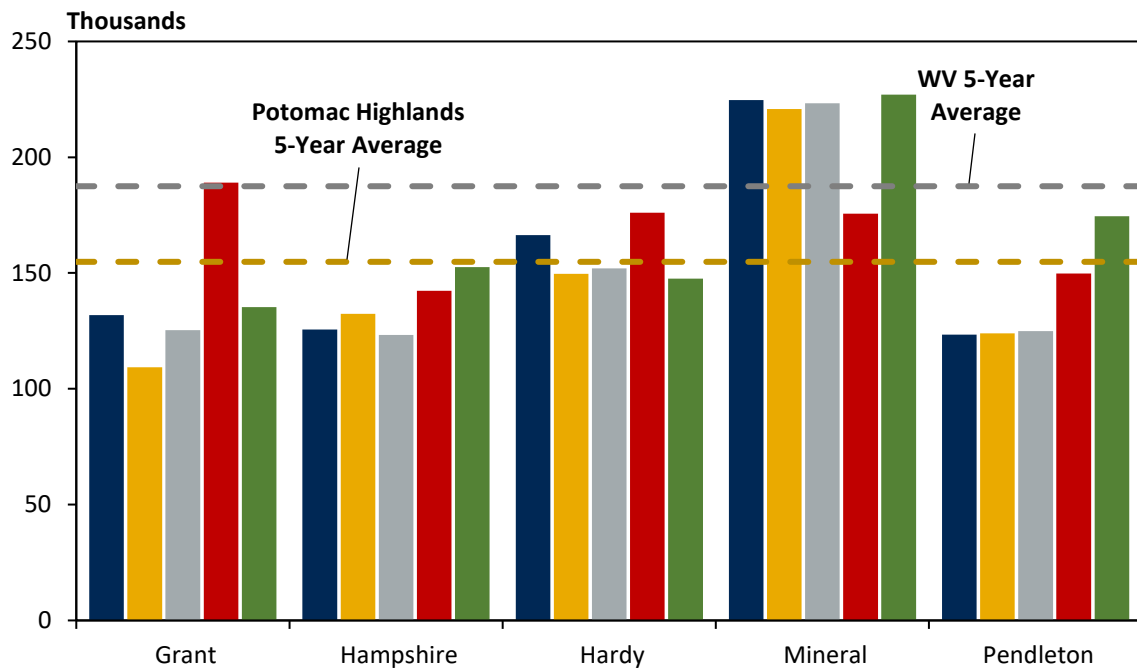


Source: Dodge Construction and 2017 Population Estimates, US Census Bureau
 Note: The figure includes only single-family house starts. Apartments are excluded.

³ Apartments and multi-family houses excluded.

The value of new housing in the Potomac Highlands region is somewhat lower than the rest of the state average, as shown in Figure 10. The average value of new homes in the region was about \$155 thousand per new home during the five years between 2013 and 2017. This compares to a state average of \$187 thousand over that same period. Mineral County had the highest new home values in the region for most of this period, with values consistently rising above \$220 thousand between 2013 and 2017, for an average of more than \$214 thousand over this period. New housing values were the lowest in Grant County with a five-year average of \$138 thousand, followed closely by Pendleton County, averaging about \$139 thousand during this period.

Figure 10: Average Value of Residential Housing Starts

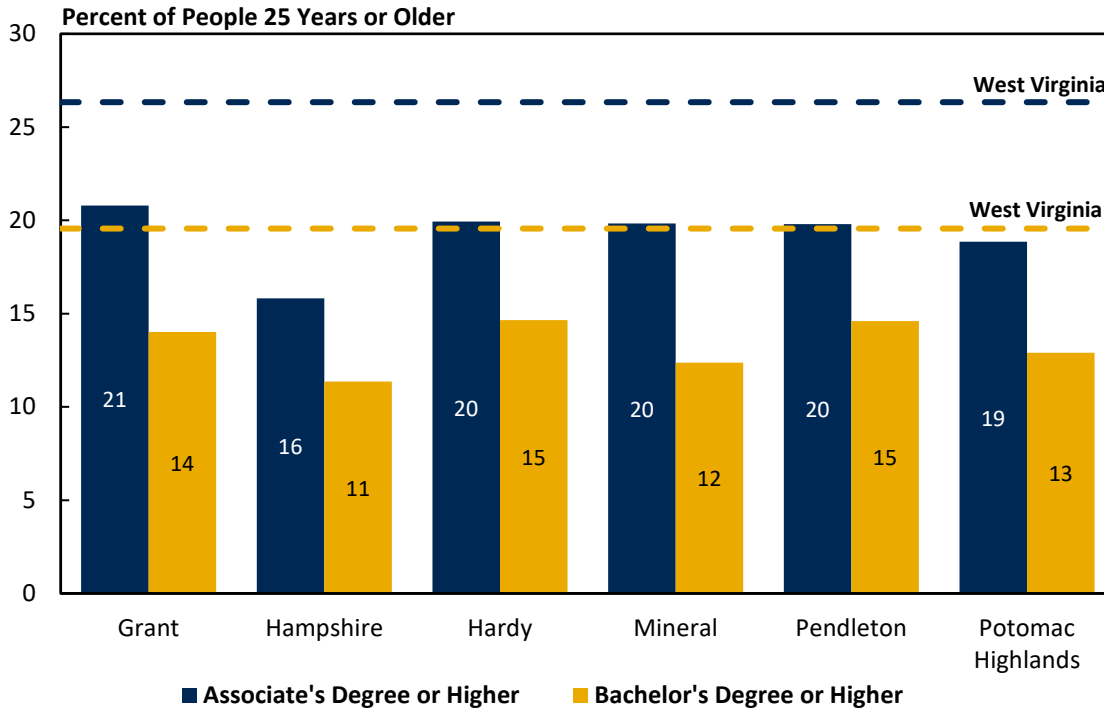


Source: Dodge Construction

Note: Includes only single-family housing starts. Apartments excluded.

Higher educational attainment in the Potomac Highlands region is lower than the state average, as shown in Figure 11. The proportion of the region's population with a bachelor's degree or higher is approximately 13 percent, which is 7 percentage points lower than the state average. The percentage of the population with at least a two-year associate's degree is 19 percent, which again is 7 points lower than the state average. Most of the counties in the region had similar rates of two-year educational attainment, falling between 19 and 21 percent, except for Hampshire County, which had 16 percent of the population with an associate's degree or higher. Four-year educational attainment ranged from 11 percent in Hampshire County to 15 percent in Hardy and Pendleton counties.

Figure 11: Higher Educational Attainment, 2016

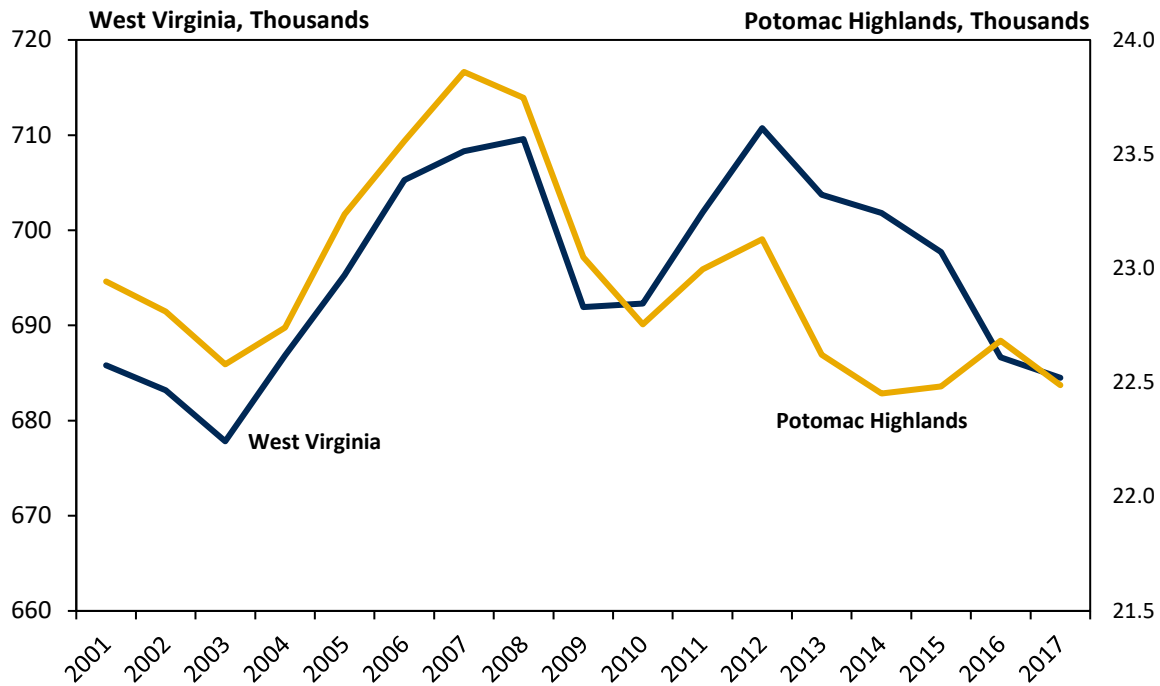


Source: 2016 American Community Survey, 5-Year Estimates, US Census Bureau

3.2 Employment, Labor Force, and Income

Employment trends in the Potomac Highlands region have been negative for much of the past decade, despite some gains in the years prior to the recent national recession in 2008-2009 (see Figure 12). Total employment peaked in 2007 at about 24 thousand jobs in the five-county region and have been on a declining trend since that time, ending at less than 22,500 jobs in 2017, a decline of about 1,400 jobs or nearly 6 percent overall. Total employment in the state as a whole has declined a similar amount during this period. However, much of the job losses on the state level have come since 2012, largely due to a decline in the coal mining industry, which is a relatively small sector in the Potomac Highlands region.

Figure 12: Total Employment

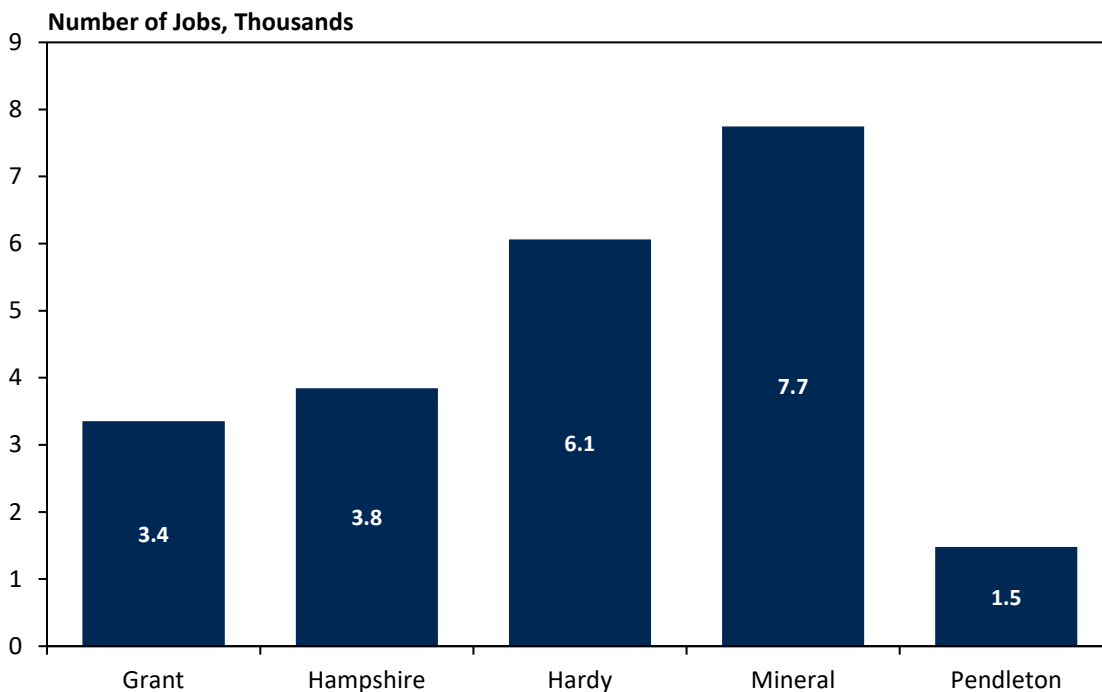


Source: WorkForce West Virginia

Mineral County has the largest economy in the region with more than 7,700 jobs in 2017, as shown in Figure 13. The county saw considerable job growth in the period between 2001 and 2008, rising from about 6,800 jobs to nearly 7,600 jobs in 2008, a gain of more than 10 percent, but has been flat since then. The county benefits from stable employment in aerospace and WVU’s Potomac State College.

The remaining four counties all lost jobs over the past decade. Hardy County’s wood products industry—most notably American Woodmark’s door and cabinetry fabrication facility—was particularly impacted by the collapse of single-family housing construction following the Great Recession. The wood products industry is highly concentrated in Hardy County, and also to a significant degree in Grant County. Much of the economic development literature focuses on supporting industrial clusters as a development strategy, which can provide a solid anchor for the local economy. However, too much specialization can also be detrimental during recessionary periods, which suggests that some level of diversification is needed. Hardy County’s manufacturing base also includes the Pilgrim’s Pride poultry processing plant. Pendleton County is the smallest economy in the region, and saw significant job losses after the closure of the Sugar Grove Naval Station, as referenced in previous sections. Grant and Hampshire counties also saw significant job losses, particularly in the manufacturing, and trade, transportation, and utilities supersectors. However many of Hampshire County’s residents commute to the city of Winchester or neighboring Virginia.

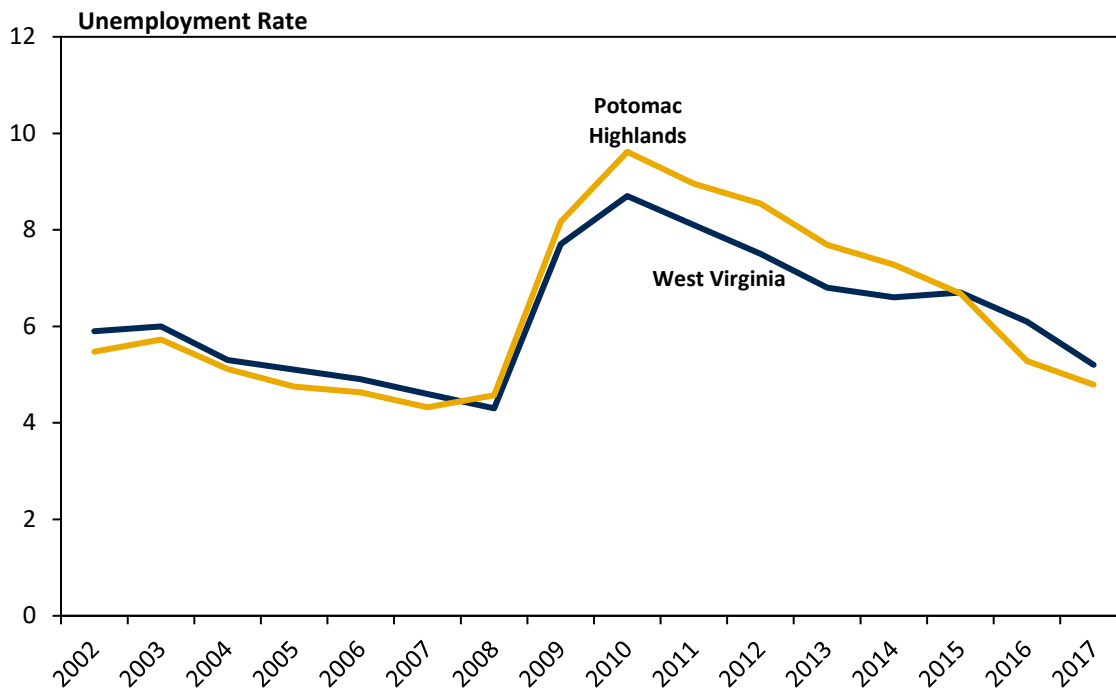
Figure 13: Total Employment by County (2017)



Source: WorkForce West Virginia

Despite job losses in the Potomac Highlands region, the unemployment rate in the five-county area has declined over the last decade since the recession, as shown in Figure 14. The unemployment rate in the Potomac Highlands peaked in 2010 at 9.6 percent, which was 1.3 percentage points greater than the West Virginia average. By 2015, however, unemployment in the Potomac Highlands had fallen below the state average and continued to fall through the end of 2017 when it reached a low of 4.8 percent, nearly where it was before the recession.

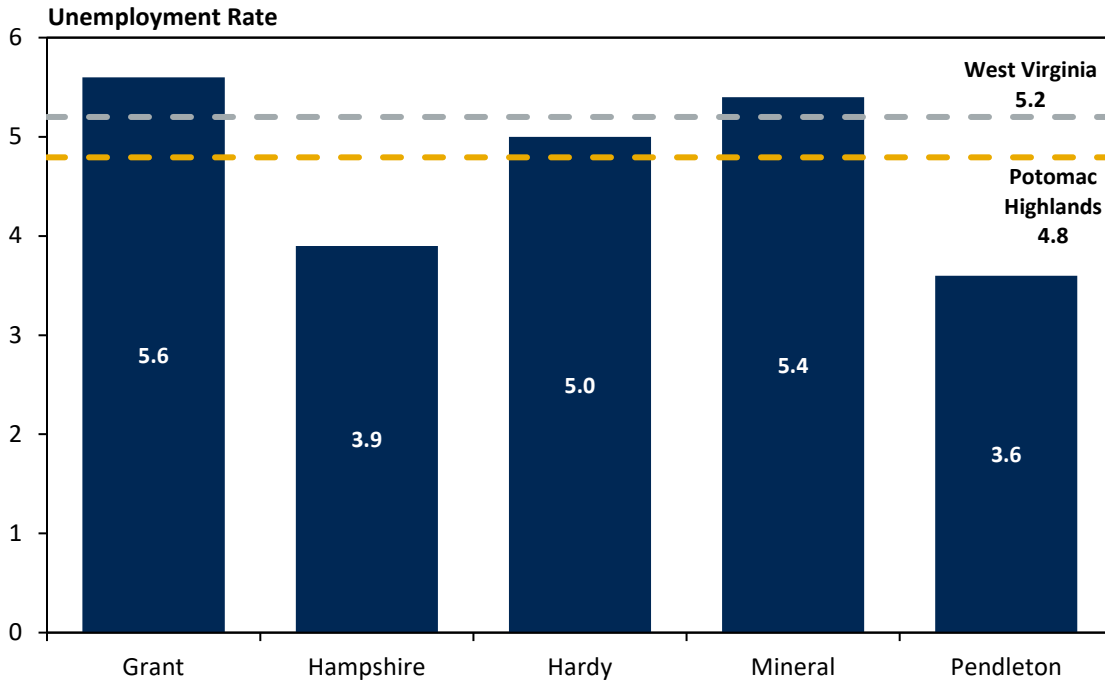
Figure 14: Unemployment Rate



Source: US Bureau of Labor Statistics

While Pendleton County had the smallest employment base in the Potomac Highlands region in 2017, it also had the lowest unemployment rate (Figure 15). Pendleton County's rate of 3.6 percent was 1.6 percentage points lower than the state average, and about half a percentage point lower than the national average. Hampshire County also had a low unemployment rate of 3.9 percent. The other three counties in the region had unemployment rates similar to the state average. Hardy, Mineral and Grant counties had unemployment rates of 5 percent and above, with Grant County's rate coming in about half a percentage point above the state average.

Figure 15: Unemployment by County (2017)

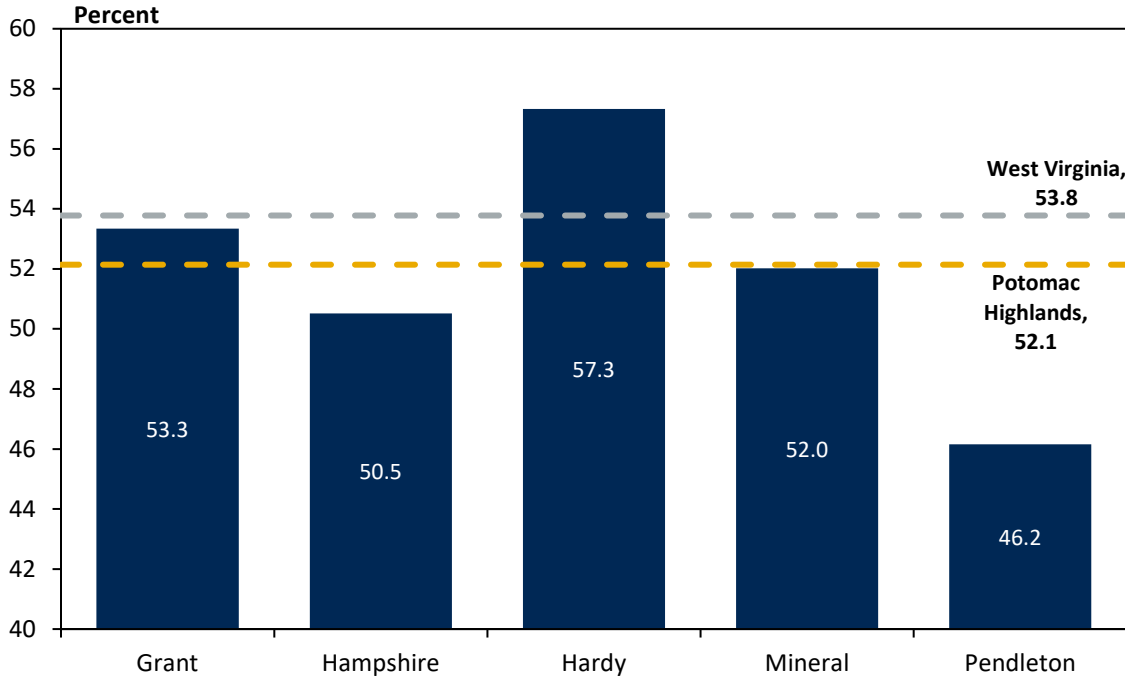


Source: US Bureau of Labor Statistics

Though the Potomac Highlands region had a lower unemployment rate than the state as a whole, the region’s low labor force participation rate is cause for concern, as shown in Figure 16. Labor force participation measures the percentage of residents 16 and older who are either employed or actively looking for work. As the Potomac Highlands population has aged over the last 10 years, the region had a smaller pool of labor to draw from to fill a declining number of jobs in the region. This resulted in a labor force participation rate of 52.1 percent, almost 2 percentage points lower than the state average of 53.8, which is the lowest in the nation. In some counties in the region, half of the working age adults were not participating in the labor force.

Pendleton County had the lowest unemployment rate in the region, but also had an unusually low labor force participation rate in 2016. At 46.2 percent it was more than 7 percentage points below the state average, and in the bottom 10 percent of counties nationally. This may be related to its relatively large share of residents age 65 and older, who are more likely to be retired. Of the other four counties, only Hardy County had a participation rate above the state average, coming in at 57.3 percent of the adult population. Grant, Hampshire and Mineral counties had labor force participation rates below the state average at 53.3, 50.5, and 52 percent, respectively.

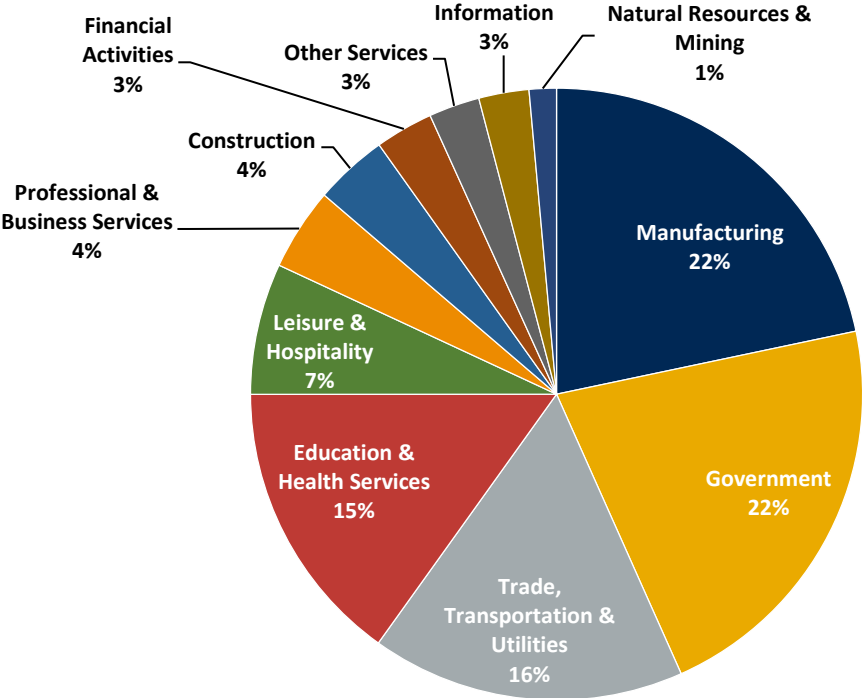
Figure 16: Labor Force Participation Rate



Source: US Census Bureau

The Potomac Highlands region has a much larger manufacturing base than the rest of the state. As shown in Figure 17, manufacturing represented more than 22 percent of the region’s employment in 2017, more than three times the state average of 7 percent. The region has employment percentages that are somewhat lower than the state average in the Mining sector, as well as Trade, Transportation, and Utilities. Education and Health Services constituted 15 percent of total employment, which was about 3 percentage points lower than the state average in 2017.

Figure 17: Employment Distribution by Sector (2017)

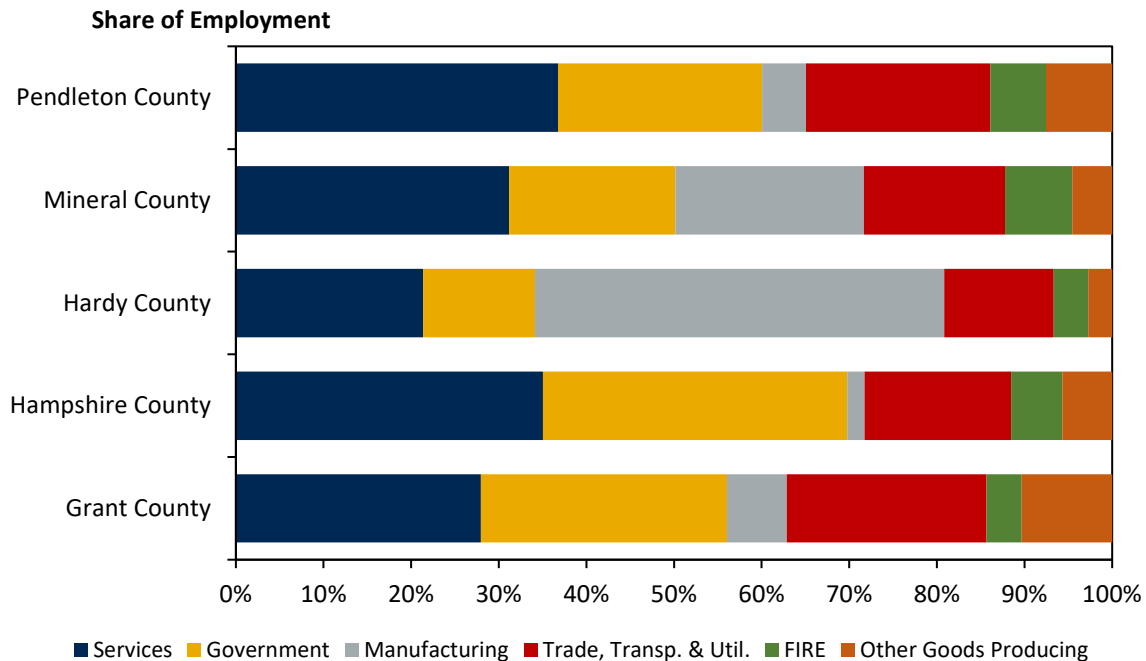


Source: WorkForce West Virginia

The region’s manufacturing sector is centered in Hardy and Mineral counties, primarily, as shown in Figure 18. Hardy County has the highest proportion of manufacturing employment, amounting to nearly half of all jobs in the county. Employment centers include the wood products industry, particularly the American Woodmark Corp.’s Moorefield facility. The county is also home to the Pilgrim’s Pride poultry processing plant. Mineral County also had a high percentage of manufacturing employment, with about 22 percent of total employment. This reflects aerospace industry employment at the Northrup Grumman Innovation Systems plant in Rocket Center.

Other counties in the region had more employment portfolios more reflective of the state as a whole. Employment in the services sector reached more than 30 percent in Hampshire and Pendleton counties, concentrated heavily in the education and health services subsectors. Hampshire and Grant counties had large government sectors as well, with employment topping more than a third of the workforce in Hampshire County, and more than 28 percent in Grant.

Figure 18: Employment Distribution by County (2017)

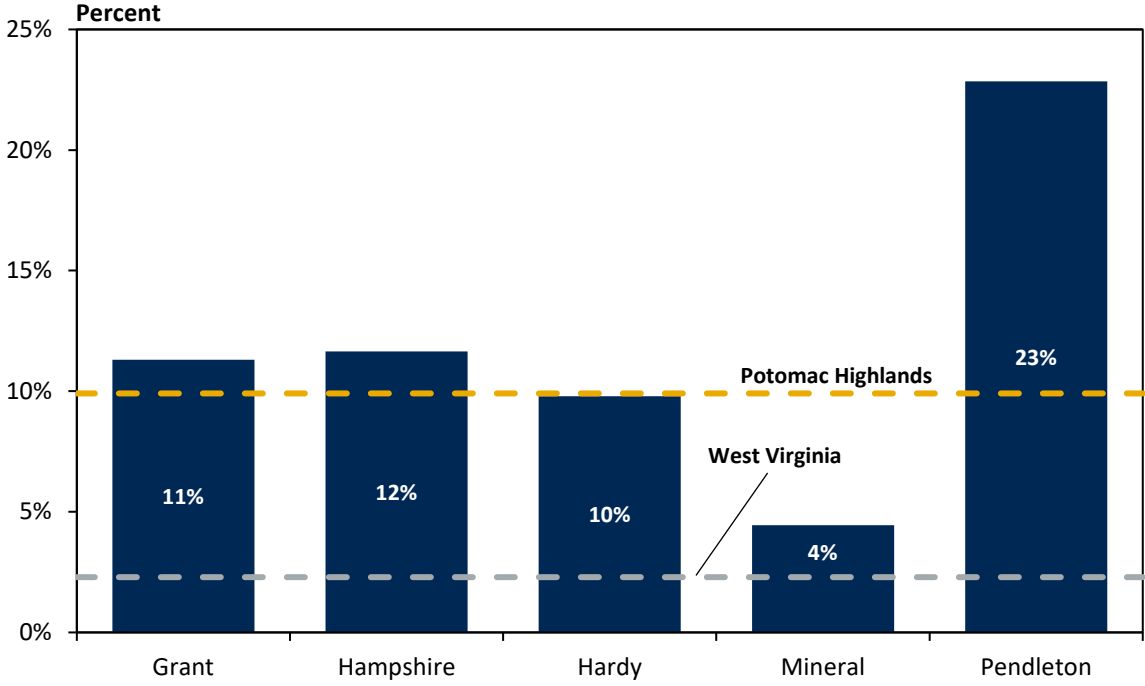


Source: WorkForce West Virginia

Note: Services includes Professional and Business, Education and Health, Leisure and Hospitality, and Other Services industries. FIRE includes Finance, Information, and Real Estate industries. Other Goods Producing includes Mining and Construction.

While the Potomac Highlands has a high number of manufacturing jobs, the region also has a relatively high share of agricultural jobs. As shown in Figure 19, nearly 10 percent of jobs in the region are in the agricultural industries—including farming and animal production—compared with about 2 percent for the state as a whole. Pendleton County’s agricultural employment is extremely high, at nearly 23 percent of total employment in the county. This is due to a large number of poultry farms that supply the Pilgrim’s Pride processing plant in neighboring Hardy County. Grant, Hampshire, and Hardy counties also have high levels of agricultural employment with shares at or above 10 percent. Mineral County’s agricultural employment share of 4 percent is closer to the state average.

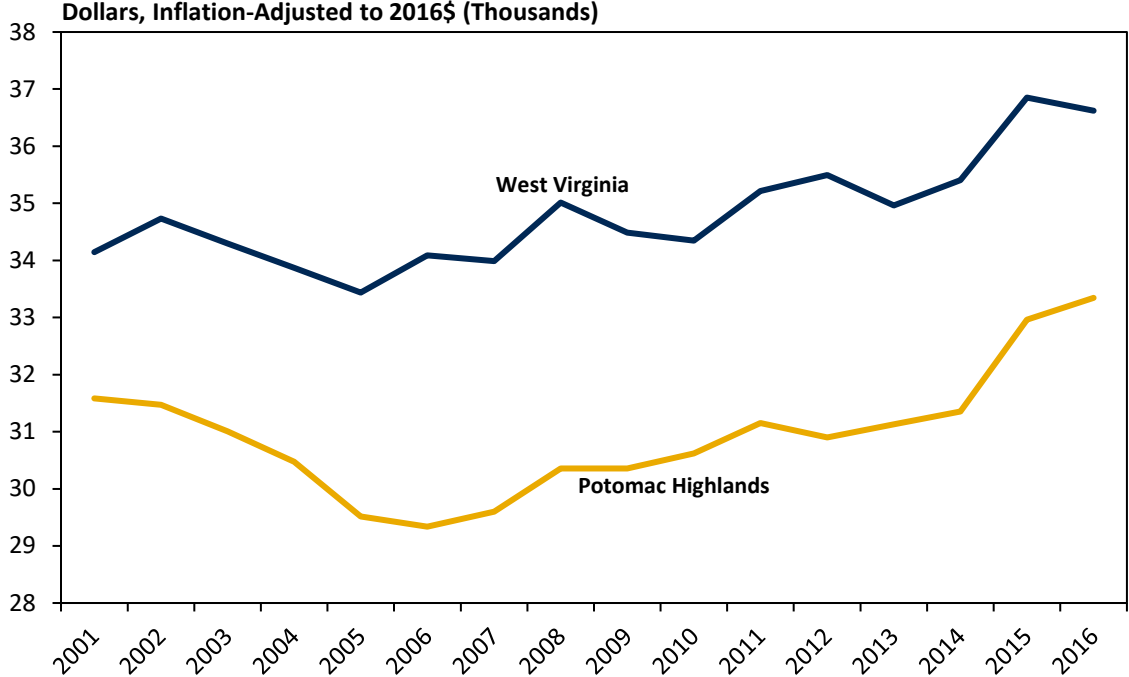
Figure 19: Agriculture Employment Share



Source: IMPLAN

Per capita personal income (PCPI) levels in the Potomac Highlands have consistently lagged below the state average over the last 15 years, as shown in Figure 20. Per capita income adjusted for inflation was approximately \$31,600 in 2001, which was about \$3,000 lower than the state income level. This differential has remained consistent over the last 15 years. Income in the Potomac Highlands in 2016 was approximately \$33,300 compared with \$36,600 in the state as a whole.

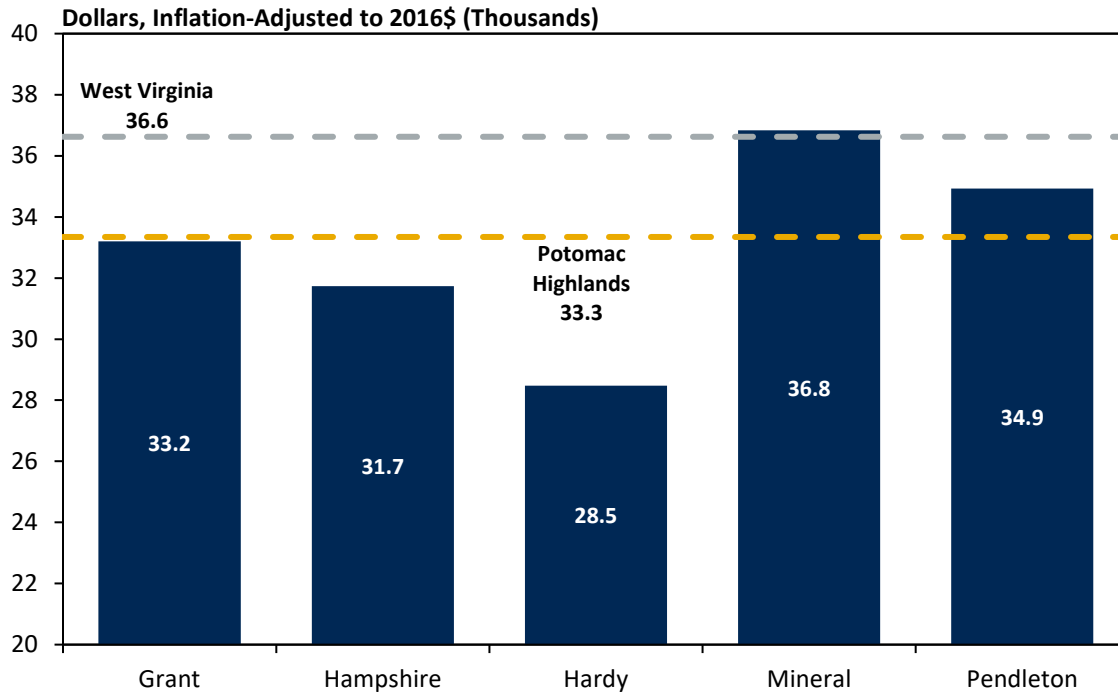
Figure 20: Real Income Per Capita



Source: US Bureau of Economic Analysis

Per capita income is highest in Mineral County, where income levels are near the state average, as shown in Figure 21. PCPI rose significantly in Mineral County over the past 15 years, increasing by more than 13 percent from \$29,500 in 2001 to \$33,600 in 2016. Though Hampshire County’s PCPI is still below the region average, it has grown more than 11 percent over the last 15 years, moving from \$28,600 to \$31,700 over this period. During the same period per capita income in Grant and Hardy counties have fallen by more than 6 percent. Pendleton County’s income level is above the region average at nearly \$35,000 per resident.

Figure 21: Per Capita Personal Income by County (2016)



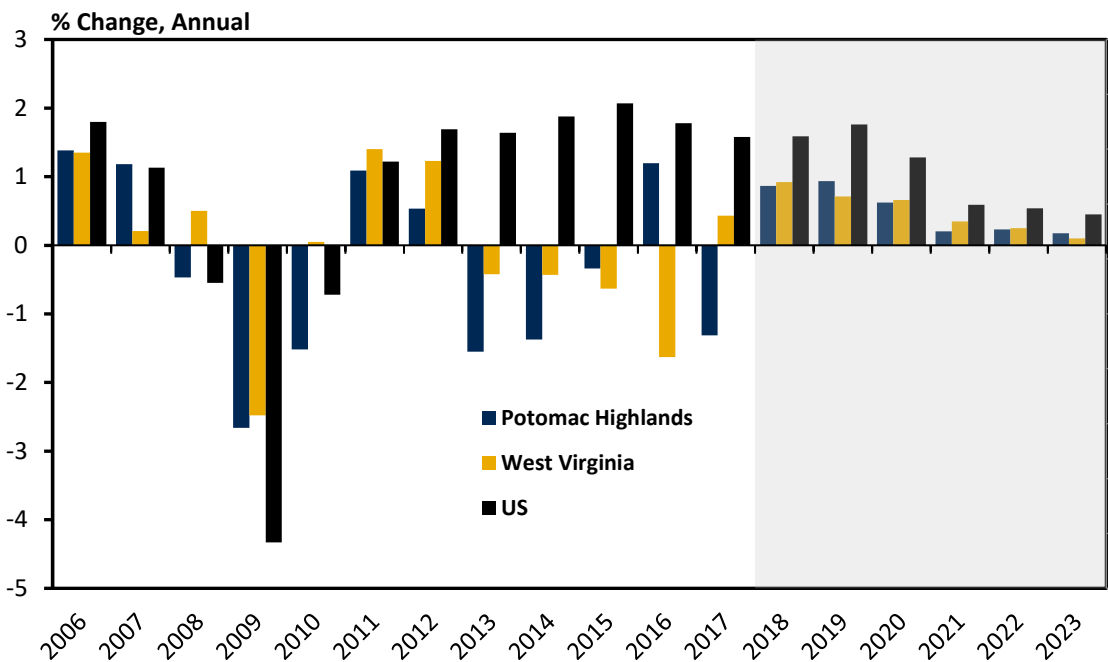
Source: US Bureau of Economic Analysis

4 Forecast for the Potomac Highlands Region⁴

Expectations for the West Virginia and US economy during the 2018-2023 forecast horizon will have a significant impact on the performance of the Potomac Highlands going forward.⁵ The forecast calls for the region to realize moderate job growth during the five-year outlook period.

Overall, we anticipate total employment will increase at an average annual rate of 0.4 percent through 2023 (see Figure 22). Regional payroll growth is expected to increase the fastest over the first half of the outlook period, averaging roughly 0.8 percent annually over the 2018 to 2020 time period. Increasing construction activity and developments in professional and business services are expected to be main drivers of this growth. Regional growth is projected to slow over the remainder of the forecast period, partly as a result of the area’s less-favorable underlying demographic characteristics. Ultimately, given the rate of growth anticipated during the outlook period, the region will likely finish the forecast horizon below the total level of employment seen as recently as 2012.

Figure 22: Employment Growth Forecast



Source: US Bureau of Labor Statistics; WVU BBER Econometric Model; IHS Markit

*Note: New River Gorge and WV use covered employment; Shaded region represents the forecast period

⁴ Portions of this section has been reprinted from the previous BBER study: Evanisko, Tatianna, Garet Leisure, Joshua Sharp, J. Parker Zopp, John Deskins, and Brian Lego, “Potomac Highlands Economic Outlook 2018-2023.” Bureau of Business and Economic Research, West Virginia University. Morgantown, WV. <https://business.wvu.edu/files/d/0617721b-2f1a-4f0a-b37f-181bd121c155/potomac-highlands-economic-outlook-2018-2023.pdf>.

⁵ All forecast estimates are derived from the West Virginia University Bureau of Business and Economic Research Econometric Model unless otherwise noted.

4.1 Goods-Producing Sectors

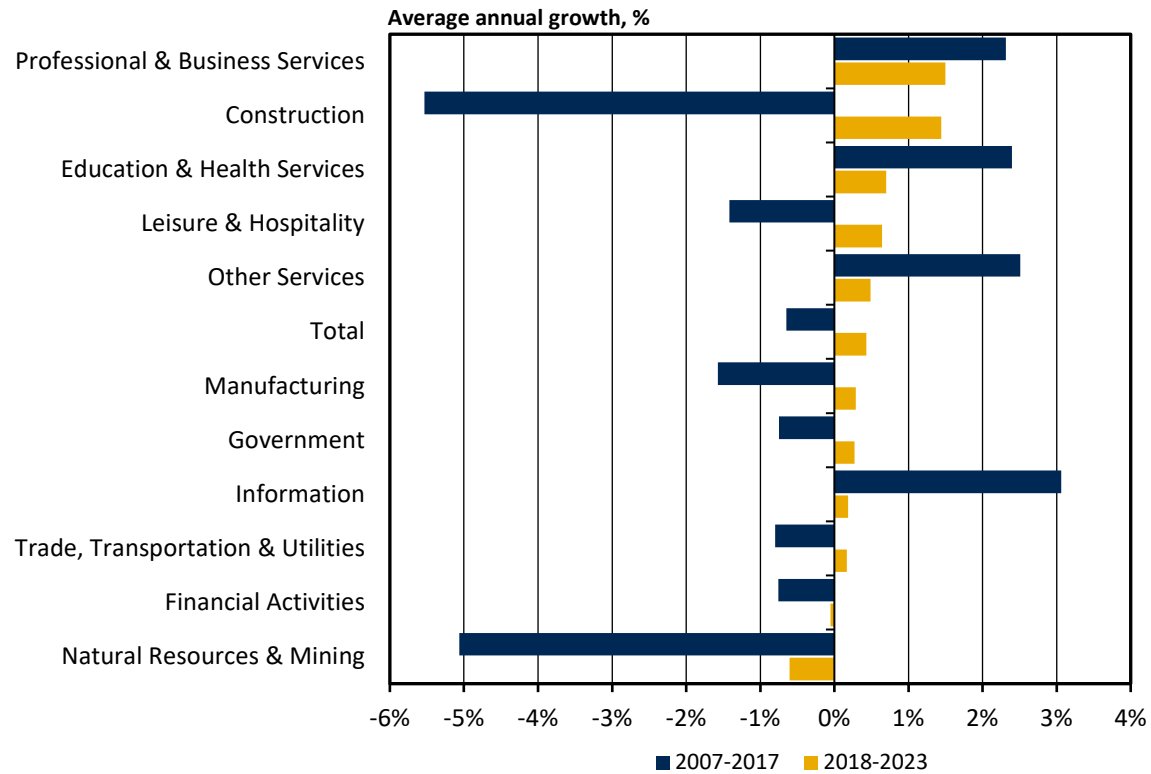
Manufacturing and construction are expected to increase in the region, in part due to the continued highway development of Corridor H and the new residents who can bring new demand into area (Figure 23). This long-lived highway development, along with other projects that have been identified by West Virginia for funding via \$5.7 million from the Roads to Prosperity Amendment, should continue to improve access to a comparatively underdeveloped region and potentially even create demand for second homes as residents in the Greater Washington, DC, area look for recreational activities. The Potomac Highlands region currently has many residents who commute out of state for employment and improved transportation infrastructure could allow more residents to settle in the area while they work in areas such as Harrisonburg, VA, or Winchester, VA, but would prefer to live in less densely populated areas such as the Potomac Highlands.

4.2 Other Sectors

The professional and business services sector is expected to grow at a strong pace during the first two years of the forecast before leveling off during the remaining years. This reflects recovering confidence in the economy and a growing demand for firms that provide administrative support for local businesses. The professional and business services sector employment is expected to grow at a 1.5 percent annual rate over the next five years.

Employment in the education and health services sector is estimated to grow over the next five years at an annual rate of 0.7 percent. Though increasing costs of healthcare create risk for this sector, the region's aging population should support growth in the health care industries.

Figure 23: Employment Growth Forecast by Sector



Source: US Bureau of Labor Statistics, WVU BBER Econometric Model

The leisure and hospitality sector accounts for 7 percent of the total employment in the Potomac Highlands region. Unlike other regions within the state, the Potomac Highlands region provides year-round tourist activities from white-water rafting at the North Branch Dam Release to more mild weather activities such as fishing, hunting, and mountain biking. Since 2007, the region’s leisure and hospitality sector experienced annual reductions in employment of 1.4 percent. However, due to growing incomes in the surrounding regions, the sector employment is expected to grow at annual rate of 0.6 percent over the next five years.

Public sector employment for the Potomac Highlands region is forecasted to grow at an annual rate of 0.3 percent between 2018 and 2023. This differs from the annual loss of employment that was seen over the last decade in the sector.

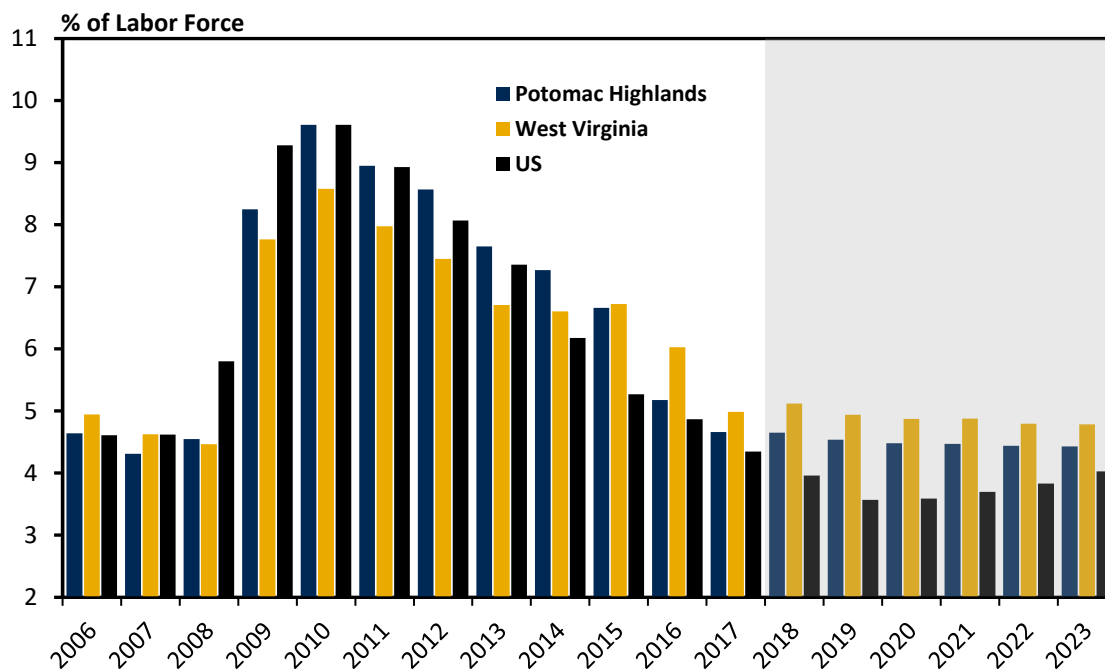
Growth in real per capita income should lead to an increase in consumer demand for retail and utilities. This will reverse the recent trend of annual losses of 0.8 percent in regional trade, transportation, and utilities sector employment in the Potomac Highlands. The sector is expected to grow at an annual rate of 0.2 percent over the next five years.

4.3 Unemployment Outlook

Unanticipated changes in the region’s labor force participation rate and revisions to historical data could cause the unemployment rate for the Potomac Highlands region to differ from both its forecasted rate and recent trajectory. With that said, the regional unemployment rate is expected to remain close to the

current level over the next few years, as previously discouraged workers rejoin the labor force as market conditions improve, putting an upward pressure on the unemployment rate (see Figure 24). Overall, the unemployment rate for the Potomac Highlands region is estimated to stand at 4.4 percent by 2023. This will put the region at unemployment levels below that of the state, but above the nationwide figure. However, we expect this stability in measured unemployment to be accompanied by a slight increase in labor force participation, indicating an improving economy overall.

Figure 24: Unemployment Rate Forecast



Source: US Bureau of Labor Statistics; WVU BBER Econometric Model; IHS Markit
 Note: Shaded region represents the forecast period

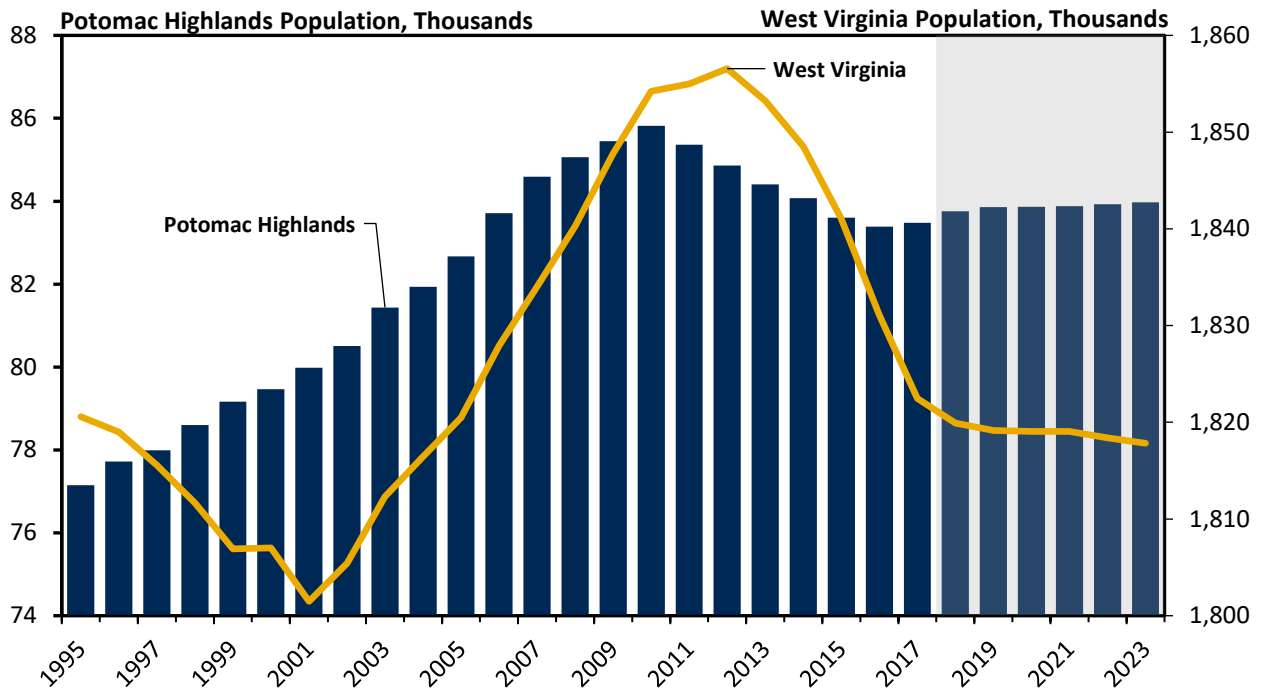
4.4 Income

Inflation-adjusted per capita income in the Potomac Highlands is projected to increase at an average annual rate of around 1.6 percent through 2023, which will lag state and national averages. The fastest driver of income growth will be transfer payments, such as Social Security retirement benefits. In addition, however, another driver of income growth is increasing reliance on income from those who commute to work in neighboring states.

4.5 Population

In light of the state’s recent demographic trends, population in the Potomac Highlands region is expected to stabilize in the outlook period as the forecast calls for the region’s population to settle at around 84 thousand residents (see Figure 25). However, despite a stabilizing population, the region will continue to face many of the same demographic challenges that affect many of West Virginia’s other economic regions, such as poor education and health outcomes.

Figure 25: Population Forecast



Source: US Census Bureau; WVU BBER Econometric Model

Note: Shaded region represents the forecast period

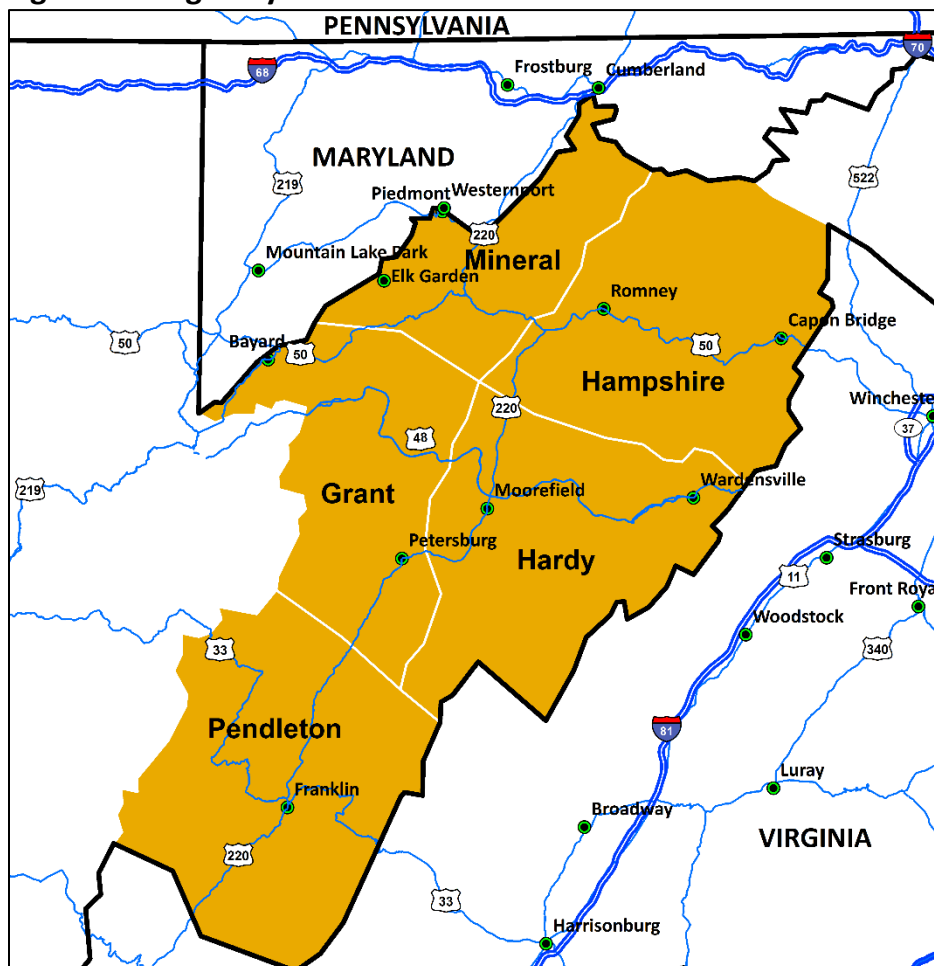
5 Economic Development Infrastructure

Economic growth in the Potomac Highlands region will require the region to diversify its economy by attracting new businesses to the region. Firm location depends heavily on available infrastructure and access to existing markets in the eastern part of the country. In this section we discuss crucial pieces of regional infrastructure, including transportation, labor commuting, and telecommunications.

5.1 Transportation

Despite its location bordering Maryland and Virginia, and its proximity to Pennsylvania, the Potomac Highlands region has relatively limited road connectivity outside the region (see Figure 26). Major US highways are limited to US-220 running north and south, US-50 across the northern part of the region, and US-33 across the south. Construction on Corridor H, designated as US-48, is largely complete across the central part of the Potomac Highlands, and is expected to improve transportation and commerce in the region. However, large sections of the Corridor in Tucker County, east of Wardsville in Hardy County, and a connection between the West Virginia state line and Interstate 81 in Virginia are incomplete, making full connectivity with major interstates still difficult.

Figure 26: Highway Infrastructure

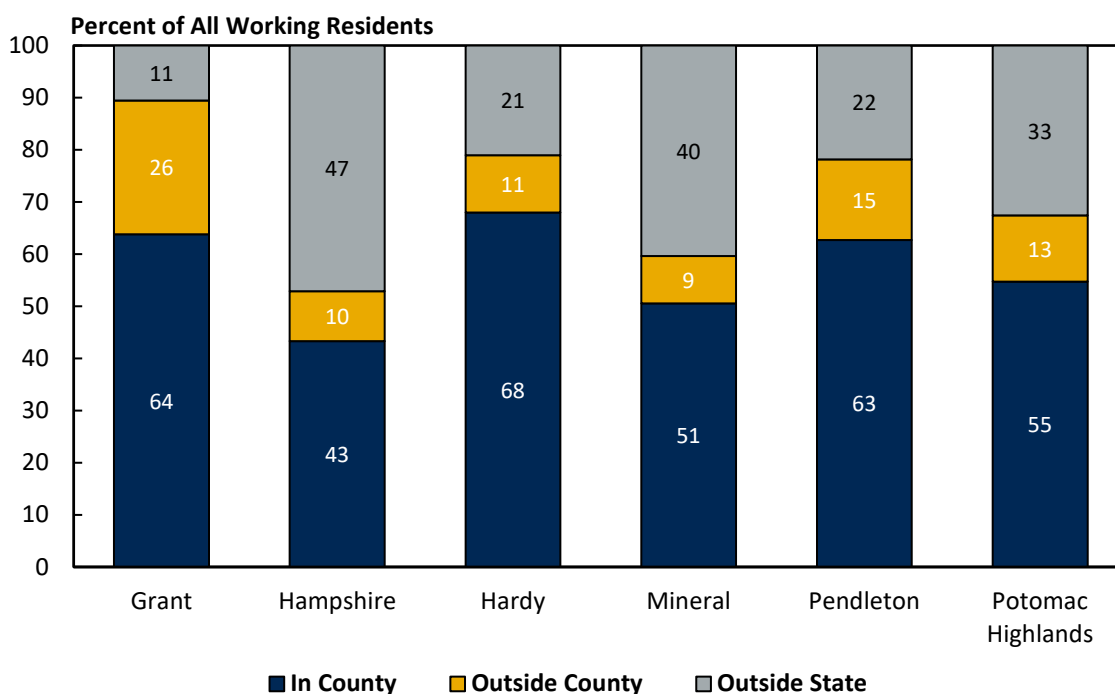


Source: US Census Bureau and ESRI

While the region’s transportation system may be limited, the Potomac Highlands does have a relatively mobile workforce. Commuting patterns indicate that 45 percent of all workers in the region commute outside their home county for work (see Figure 27). As may be expected, given the region’s proximity to three neighboring states, approximately one-third of workers in the region commute outside the state, while 13 percent commute to another county within West Virginia.

Hampshire and Mineral counties have the highest rate of out-commuting, at 57 and 49 percent respectively. Both of these counties are part of larger metropolitan areas—Winchester, VA, and Cumberland, MD, respectively—with city centers outside the Potomac Highlands region, and thus have high rates of commuting outside the state. Residents of Grant County have the highest rate of in-state commuting, with about one-quarter of workers whose jobs are outside the County but within West Virginia.

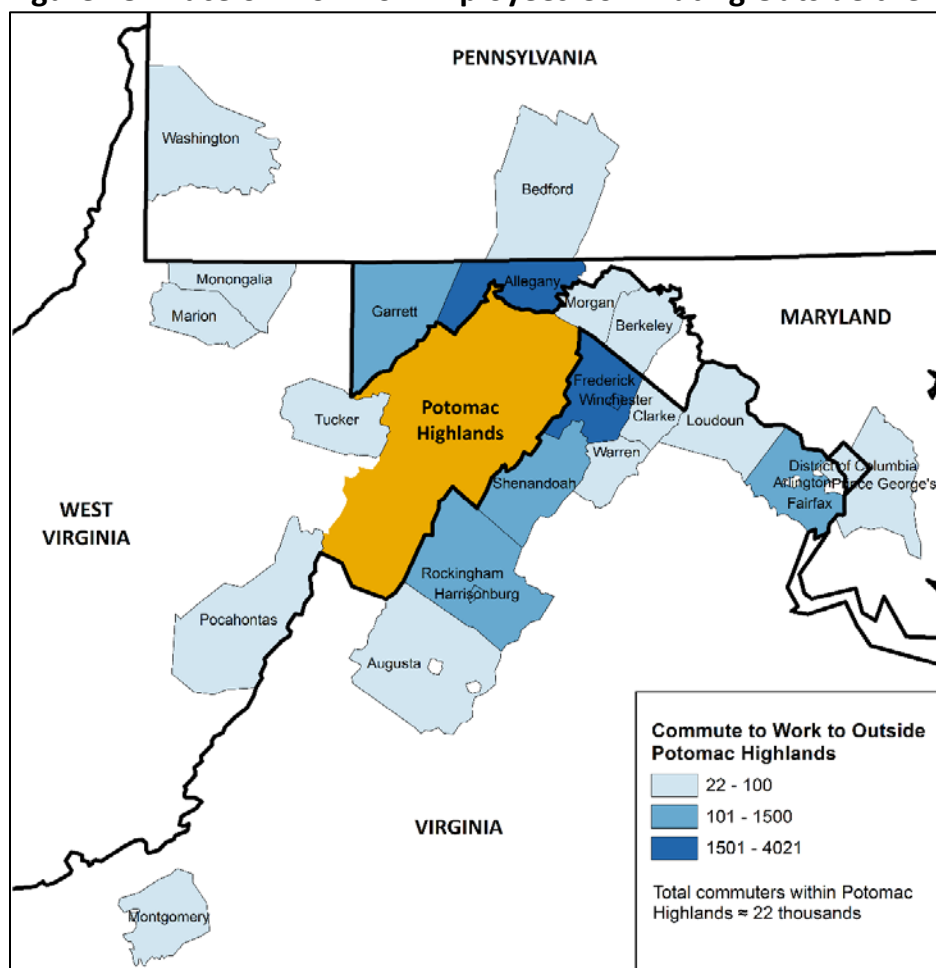
Figure 27: Employee Place of Work



Source: US Census Bureau

In Figure 28, we show the locations where commuters work outside of the Potomac Highlands region. The largest share of workers who commute outside the Potomac Highlands region work in Allegany County, MD, and Frederick County, VA. These commuters are taking advantage of jobs in the larger metropolitan areas of Cumberland and Winchester. Large numbers of workers also commute to the Washington, DC, and Harrisonburg, VA, metropolitan areas. Smaller numbers of commuters roam farther afield, commuting as far as Monongalia and Pocahontas counties in West Virginia, as well as Washington County, PA, and Montgomery County, VA.

Figure 28: Place of Work for Employees Commuting Outside the Potomac Highlands



Source: US Census Bureau

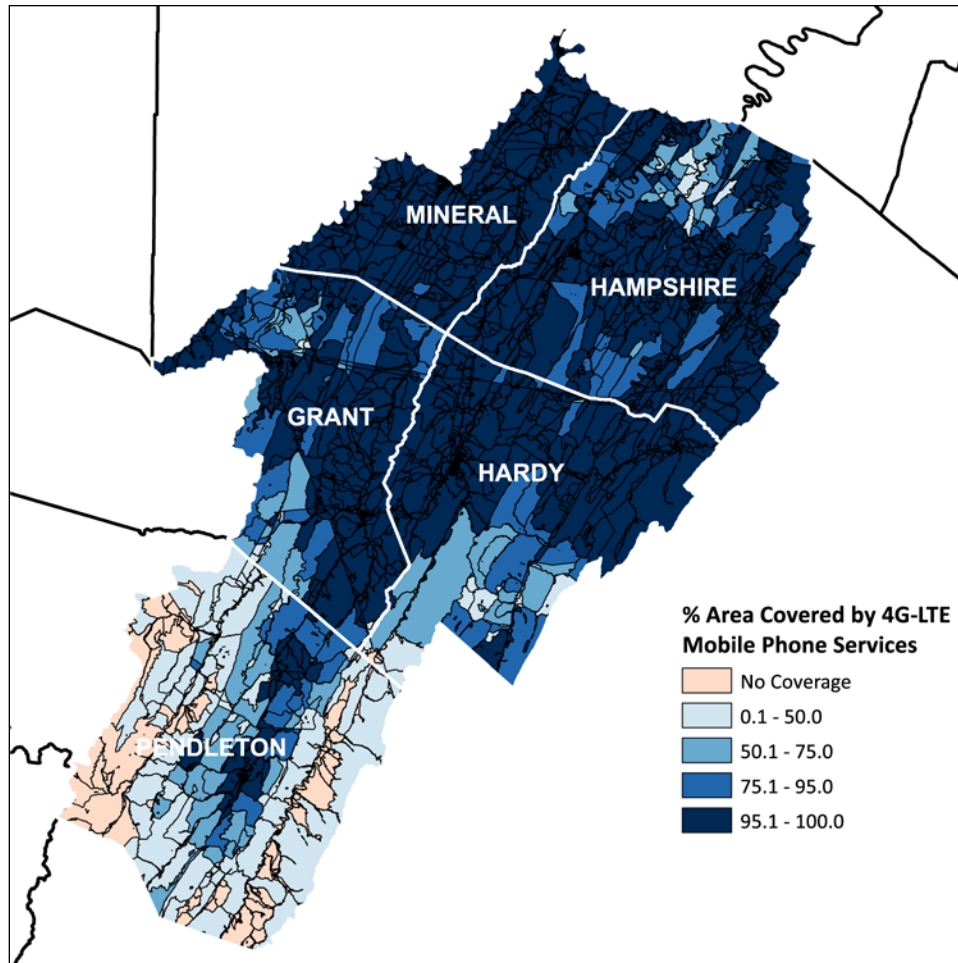
5.2 Telecommunications

Telecommunications in the Potomac Highlands is also a challenge, with large areas of the region that are poorly covered by the major national mobile carriers. In Figure 29 we show reported coverage areas for the five largest national mobile carriers⁶ in the US Census blocks that make up the five Potomac Highlands counties. For this map, we calculated the highest percentage of geographical area covered with 4G-LTE service by any of the carriers in the Census block.

Mineral County is the most well-served county in the region, with the large majority of area covered by LTE service. Parts of Hampshire, Grant, and Hardy counties also have strong coverage with a large number of Census blocks where more than 95 percent of the area can receive an LTE signal. However, much of the area in Pendleton County has little to no service by any of the major national carriers.

⁶ National mobile carriers referenced in this report include Verizon, AT&T, Sprint, T-Mobile, and US Cellular. Data is based on surveys conducted by the US Federal Communications Commission.

Figure 29: Cell Phone Coverage, 4G-LTE



Source: US Federal Communications Commission

Broadband internet service has become critical infrastructure for economic growth as both residents and companies look for broadband when moving to a region. In Figure 30, we report the speed of wired internet available in the Potomac Highlands region by US Census block.⁷ In much of the region internet is either unavailable, or internet speeds clock in below 25 megabits per second (Mbps), which is the minimum speed that can be considered broadband as defined by the US Federal Communications Commission.⁸ High-speed broadband of 100 Mbps and above is available in Hardy County and some larger towns and cities.

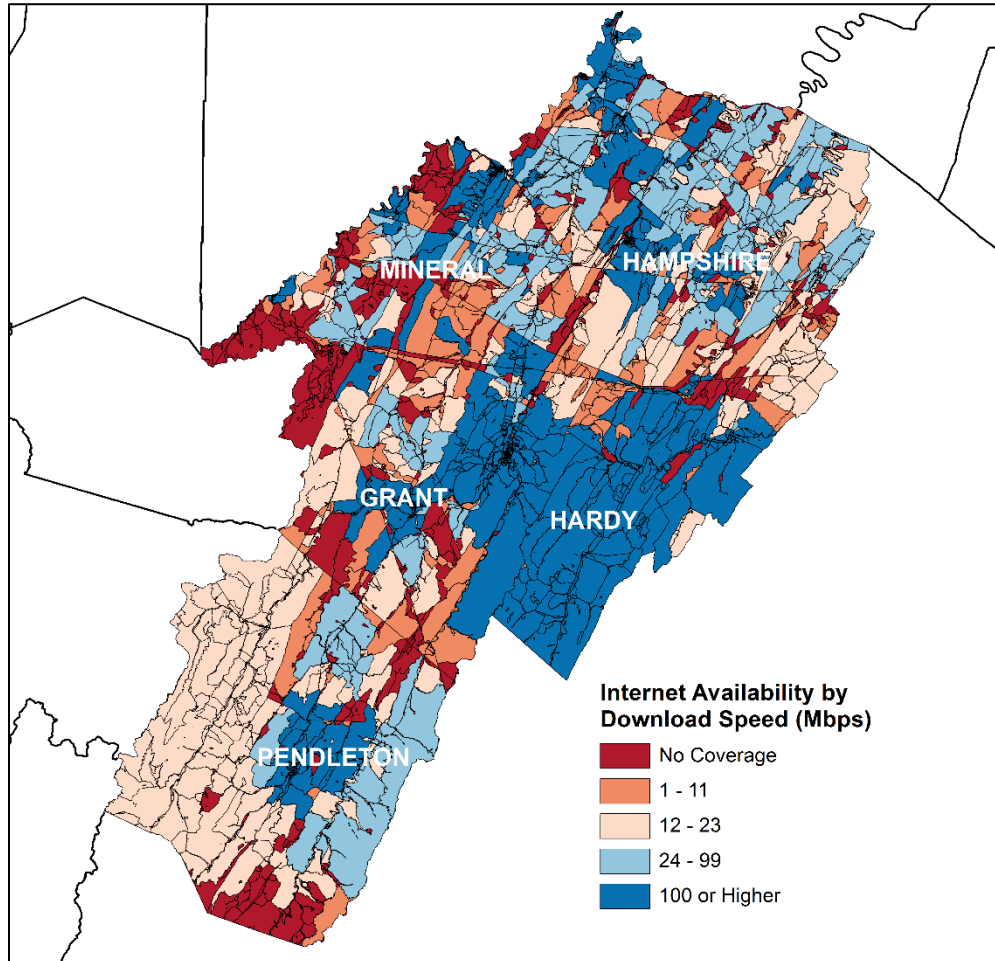
Hardy County is the only county in the region where broadband speed internet is available in a majority of Census blocks. This is large degree due to the presence of Hardy Telecommunications, a customer-owned cooperative that provides telephone, TV, and internet services to residents in Hardy and parts of

⁷ The region is also served by a number of satellite companies that potentially offer broadband speed internet. We report speeds only for terrestrial (wired) internet.

⁸ In 2015, the US Federal Communications Commission changed its definition of broadband to raise the minimum speed recognized as broadband to 25 Mbps.

other neighboring counties. Hardy Telecommunications recently completed a project to provide fiber-to-home internet that will allow for increased speeds above 100 Mbps in its service area. Large areas of Mineral County have little to no service, and much of Pendleton County has service at speeds between 12 and 23 Mbps, which is now considered sub-broadband.

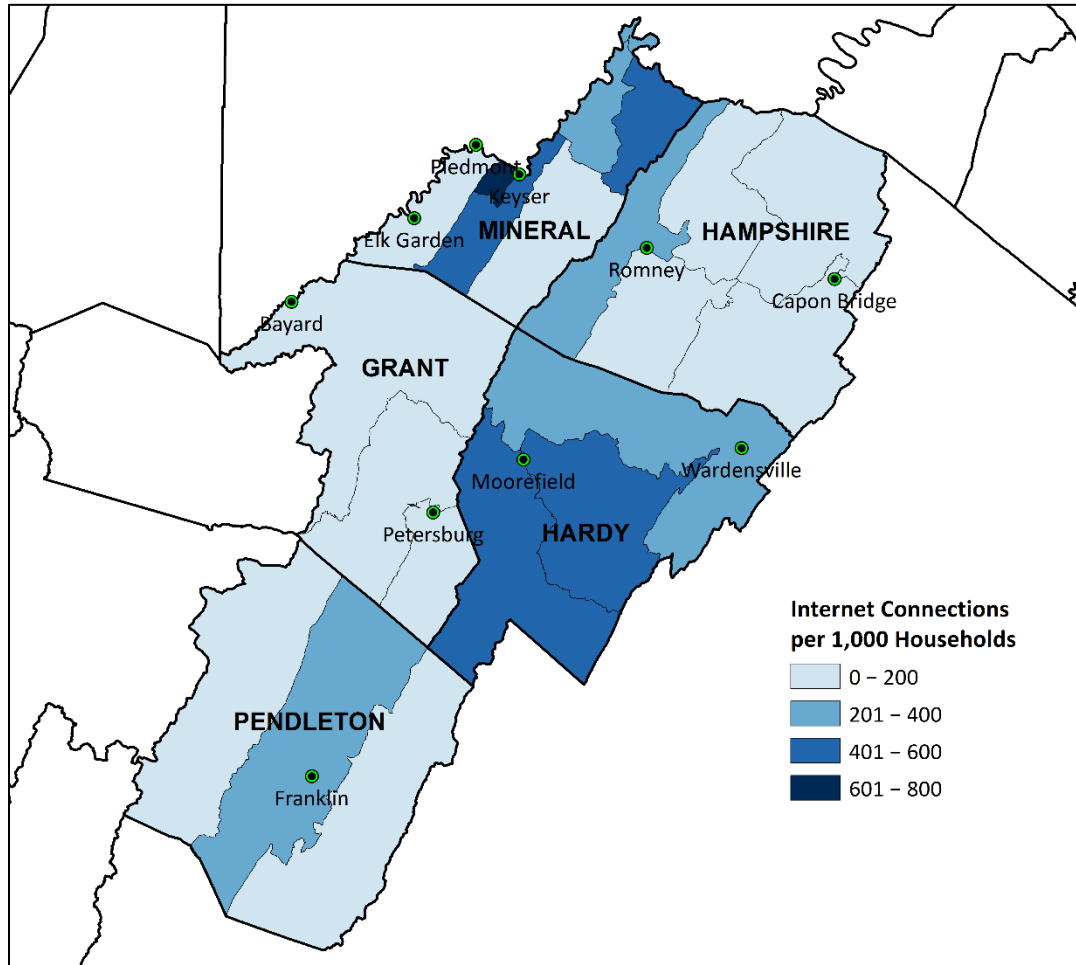
Figure 30: Wired Broadband Coverage



Source: US Federal Communications Commission (FCC). Note: The FCC defines broadband speed to be above 25 Mbps (indicated in blue shades).

The distribution of broadband internet subscriptions aligns closely with availability of broadband service, as shown in Figure 31. Broadband service subscriptions are relatively high in Hardy County, for instance, where Hardy Telecommunications provides access to higher-speed broadband service. Parts of Mineral County, particularly around Keyser, also have high broadband subscription rates. However, in Hampshire, Grant, and Pendleton counties, where broadband access is rare, less than half of all residents have broadband internet subscriptions.

Figure 31: Broadband Internet Connections per 1000 Residents



Source: US Federal Communications Commission

About the Bureau of Business and Economic Research

Since the 1940s, the BBER's mission has been to serve the people of West Virginia by providing the state's business and policymaking communities with reliable data and rigorous applied economic research and analysis that enables the state's leaders to design better business practices and public policies. BBER research is disseminated through policy reports and briefs, through large public forums, and through traditional academic outlets. BBER researchers are widely quoted for their insightful research in state and regional news media. The BBER's research and education/outreach efforts to public- and private-sector leaders are typically sponsored by various government and private-sector organizations.

The BBER has research expertise in the areas of public policy, health economics, energy economics, economic development, economic impact analysis, economic forecasting, tourism and leisure economics, and education policy, among others. The BBER has a full-time staff of three PhD economists, and one master's-level economist. This staff is augmented by graduate student research assistants. The BBER also collaborates with affiliated faculty from within the College of Business and Economics as well as from other parts of WVU.

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