

# WEST VIRGINIA ECONOMIC OUTLOOK 2014

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2014

# WEST VIRGINIA ECONOMIC OUTLOOK

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## EXECUTIVE SUMMARY

West Virginia's economy continues to improve, and the pace of improvement has exceeded that of the United States by several measures recently. We expect the economic recovery in West Virginia to continue, although at a somewhat slower rate that will likely fall short of the national pace on several key dimensions in the near-term.

**Several key highlights concerning West Virginia's recent economic performance are as follows:**

- **Employment in the state has increased by approximately 3,000 jobs (0.4 percent) over the past year** and the overall level of employment in the state is down only slightly from the all-time high observed earlier this year.
- **The natural resources and mining sector has been the largest contributor to statewide net job growth over the past few years.** The sector added 2,300 new workers between the second quarters of 2012 and 2013. With the state's natural gas production more than doubling within the past two calendar years, drilling and extraction throughout the Marcellus and Utica Shale formations have provided a significant boost to payrolls.
- **Other areas of job growth are in retailing, construction, leisure and hospitality, and education and health services.** The public sector has been struggling to add jobs, dampening overall job growth in the state.
- **West Virginia's unemployment rate is at its lowest level since early-2009**, and the rate is significantly below the national average.
- **Per capita personal income in West Virginia has grown rapidly** over the past five years, reaching \$34,477 in 2012. However, despite this growth, per capita personal income in the state still ranks low, surpassing only three other states.
- **Overall, the state's real gross domestic product (GDP) expanded 3.3 percent during 2012, noticeably above the national rate.** West Virginia ranked 10th among all states in terms of state GDP growth during 2012.
- **Exports have grown dramatically in terms of their importance to the West Virginia economy.** In 2000, exports accounted for 5.4 percent of West Virginia's GDP; by 2012, that figure had exploded to 16.3 percent.

- **The state's exports grew an average of 5.2 percent per year between 2000 and 2009.** Over this same period, overall US exports declined at an annual rate of 0.2 percent. The strong growth in West Virginia's exports is primarily driven by strong growth in coal exports since 2008.

**However, the West Virginia economy is not without its problems. The following negatives have dampened West Virginia's recent economic performance:**

- **The share of the West Virginia population that either has a job or is looking for a job is low.** The figure is 54 percent in West Virginia, compared to 63 percent nationally.
- **Economic performance across West Virginia has varied significantly by county**, with some counties posting very little to no economic growth recently.
- **Population growth in West Virginia has been very slow** over the past decade, and population gains have been heavily concentrated in a few areas, such as the state's Eastern Panhandle and Monongalia County. Overall 39 of West Virginia's counties saw their population decline over the past decade.
- **West Virginia has some of the highest death rates for heart disease, cancer, and diabetes in the country.** West Virginia ranks among the bottom tier of states across health risk factors like high blood pressure, physical inactivity, poor nutrition, smoking, and obesity.

**Highlights of our forecast for West Virginia's economy are as follows:**

- **Employment in West Virginia is estimated to increase 1 percent per year through 2018**, compared to expected growth at the national level of 1.6 percent annually.
- **Construction sector employment is expected to increase at an annual rate of 2.3 percent** over the next 5 years.
- **The service-producing side of the economy is expected to experience the strongest rate of job growth** during the outlook period. Education and health services payrolls are expected to expand at a rate of 2.1 percent annually for the next five years.

- **The state's unemployment is expected to continue to fall during the period**, reaching a low of 4.5 percent by the end of 2018. However, this decline is attributable to not only job gains, but also to demographic trends, since a larger share of the state's workforce will be retiring and exiting the labor force.
- **Per capita personal income is expected to grow at an annual average rate of 2.3 percent** over the next five years, below the national rate of 2.7 percent.
- **The state's population is expected to decline at an annual rate of 0.1 percent** over the next five years, driven by a continued slowdown in net in-migration and death rates that outnumber birth rates.
- **West Virginia's population is expected to grow increasingly older, at a rate that surpasses the national trend.**
- **Challenges exist that could threaten the expected growth for the US and West Virginia economies.** These include: a potential slowdown in the economies of major US trading partners that could threaten exports; a high level of US federal government debt; the potential for inflation to destabilize the economy as bank lending and the broader economy improve; and the coming rise in interest rates.

**There are also negatives associated with our forecast for the state. Consider the following:**

- **Job growth in natural resources and mining is expected to drop off considerably** from the pace of gains observed in recent years, diminishing to a 0.3 percent annual growth rate.

**FIGURE 0.1: West Virginia and US Forecast Summary**

	West Virginia		United States	
	2002-12	2013-18	2002-12	2013-18
Population (average annual growth, %)	0.3	- 0.1	0.9	0.8
Employment (average annual growth, %)	0.4	1.0	0.2	1.6
Unemployment Rate (annual average at end of time period, %)	7.3	4.5	8.1	5.5
Real Per Capita Personal Income (average annual growth, %)	1.3	2.3	0.9	2.6

Sources: US Census Bureau; Workforce WV; US Bureau of Labor Statistics;  
US Bureau of Economic Analysis; WVU BBER Econometric Model; IHS Global Insight



## CHAPTER 1: THE UNITED STATES ECONOMY

### OVERVIEW

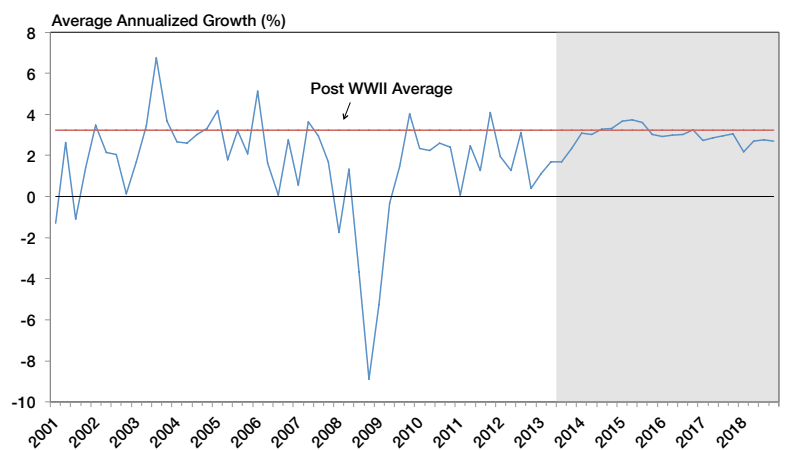
Despite more than four years of consistent growth, the United States economy remains below its full economic potential.<sup>1</sup> This recovery, which began in June of 2009, has proven to be the most lethargic, by most measures, of any economic recovery in the post-World War II era in the United States. However, several encouraging signs of economic growth are apparent—such as falling unemployment, rising stock prices, and rising consumer confidence—that provide hope for a stronger economy moving forward. In this chapter we a) explore recent trends in the United States economy, b) provide a forecast of how the economy is likely to evolve over the near-term, and c) explore several major challenges that have the potential to threaten the robustness of this economic recovery.

### RECENT TRENDS AND SHORT-TERM ECONOMIC OUTLOOK

After the United States' total economic output fell by more than 4 percent over the course of the 2007 to 2009 recession, growth has generally been below the nation's long-run average during the four years of economic recovery we have experienced. As illustrated in Figure 1.1, economic growth, as measured by Real Gross Domestic Product (GDP), has grown at an average annual rate of around 2 percent in the recovery period, noticeably below the economy's long-run trend. This growth has been slow enough such that, after four years, economic output, and correspondingly employment, still fall short of what is considered to be the economy's sustainable long-run potential. However, given recent encouraging signs in some of the economy's leading economic indicators, output growth is expected to improve beginning in 2014, with a predicted annualized growth rate of around 3.2 percent per year, very close to its long-run trend.

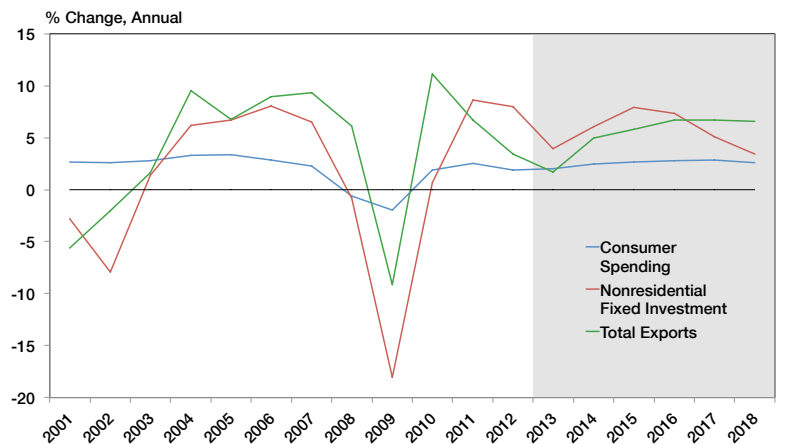
Figure 1.2 shows three of the major elements that comprise US GDP: spending on consumer goods and services, spending on investment goods, and US exports. Spending on consumer goods and services, which is by far the largest component of GDP, has shown a great deal of stability over the recent business cycle, comparably speaking. However, growth in consumer spending still falls short of the rate that prevailed before the recession. Several factors continue to suppress household spending to some degree: households continue to reduce their debt levels, leaving less room for consumer goods; housing prices remain well below their pre-recession levels; and while having improved significantly, consumer confidence remains below pre-recession levels. Consumer spending is expected

FIGURE 1.1: United States Real GDP Growth



Sources: US Bureau of Economic Analysis; IHS Global Insight

FIGURE 1.2: Growth in Components of United States GDP



Sources: US Bureau of Economic Analysis; IHS Global Insight

to continue to improve gradually over the next several years, but will not likely be the driving force behind continued economic expansion.

Spending on investment goods—capital goods that will enhance future productivity, such as industrial facilities and equipment—has been far more volatile over the recent business cycle relative to consumption. Also, as illustrated in Figure 1.2, nonresidential fixed investment spending collapsed at an annualized rate of approximately 16 percent at the nadir of the recent recession, then recovered rapidly, growing at a rate of around 7 percent over much of 2011 and 2012.<sup>2</sup> Investment activity is expected to diminish to a growth rate of approximately 4 percent in 2013, likely because of the expiration of a federal tax investment

1. A significant portion of this section represents the author's review, analysis, interpretation, and summary of information presented in the United Nations' World Economic Situation (2013), the International Monetary Fund's World Economic Outlook (2013), and IHS Global Insight's US Economic Outlook (2013).

2. Nonresidential fixed investment excludes spending on new home construction.

incentive, which likely contributed to a sharp increase in investment at the end of 2012, shifting that activity away from 2013. However, investment is expected to return to around an 6 percent annual growth rate over the next two to three years. Investment activity is looked to as a major source of continuing economic growth. However, consistent with its volatile nature, capital investment activity is uncertain, and there are potential challenges that raise doubt about whether businesses will enhance their investment activities as expected. We discuss several of these major concerns below.

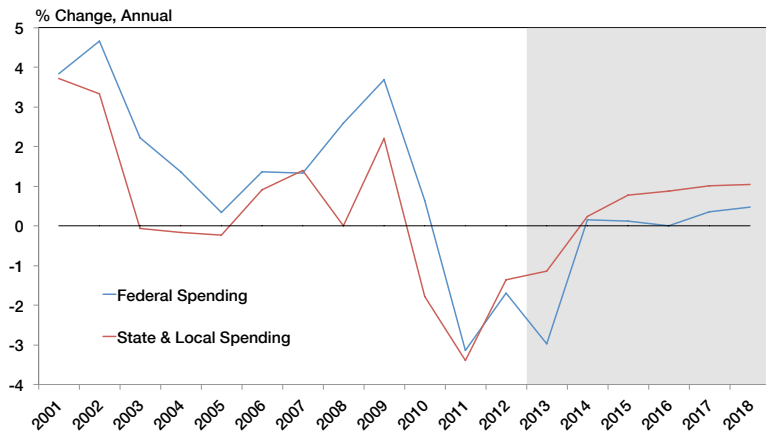
US exports, while a relatively small share of total output, were nonetheless an important contributor to the volatility in GDP over the recent business cycle, and are also viewed as potentially an important source of future economic growth. As illustrated in Figure 1.2, the value of total US exports fell at an annualized rate of around 9 percent during the pit of the recent recession, then exploded at a rate of more than 11 percent in late-

2010, and diminished to a growth rate of around 2 to 3 percent over the past year. Much of this recent slowing in export growth can be attributed to an economic slowdown in important US export markets, such as China and the European Union. However, in a fashion similar to that of investment activity, export growth is forecast to improve to around 5 percent annually by the end of 2014, and to continue to improve thereafter. Unfortunately, in the same vein as investment activity, the health of US exports is uncertain given the myriad of potential sources of economic pressure across the world, such as the ongoing European debt crisis, a potential economic slowdown in China, sluggish economic growth in Japan, and political unrest in many other parts of the world.

The recent evolution of government spending in the US is represented in Figure 1.3. Total government spending, which amounts to around one-third of US GDP, increased substantially during the recent recession. This rise was driven by a concerted economic stimulus effort that actively increased government spending and as safety net expenditures rose naturally as the economy went into recession. After recovery began in 2009 and 2010, government spending started to fall, reaching an annualized rate of decline in excess of 3 percent by 2011. This decline in government has held down broader economic growth in a direct sense to some degree, since much government spending is itself part of economic output. Federal and state and local government spending are expected to continue to decline at a slower pace over the coming year, after which state and local government spending is expected to grow modestly while federal government spending is expected to remain flat, in inflation adjusted terms. A continued decline in transfer payments from the government, as unemployment continues to fall, is a major contributing factor to the outlook for federal government spending. The spike in the federal budget deficit and the political pressure it has created to tighten federal spending is a second major contributor.

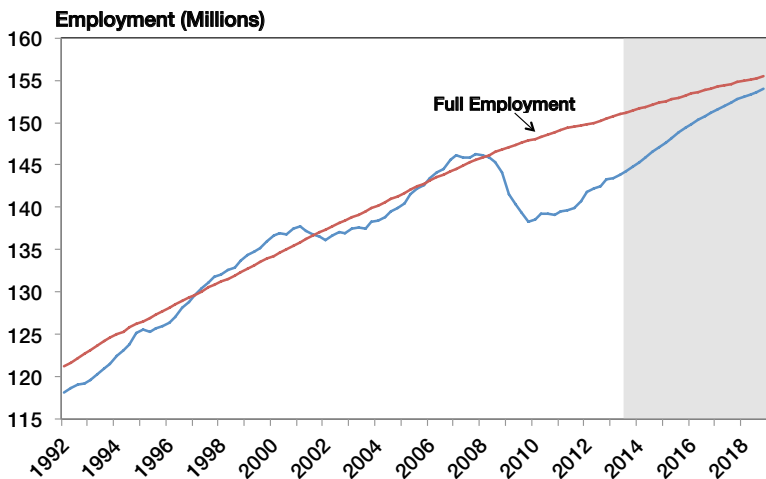
Employment growth has been especially sluggish during this economic recovery. It is not uncommon for employment to recover more slowly than output, as businesses typically increase output through eliminating excess capacity, through capital investment, and through increasing worker hours, before adding new workers. But employment has become increasingly slow to recover: employment growth in each recession of the past two decades—in the early-1990s, the early-2000s, and through the recent cycle—has progressively slowed compared to earlier recessions of the modern era. As depicted in Figure 1.4, total nonfarm employment in the US fell substantially during the recent recession, with an overall loss in excess of 7 million jobs. Employment

**FIGURE 1.3: Growth in United States Government Spending**



Sources: US Bureau of Economic Analysis; IHS Global Insight

**FIGURE 1.4: United States Total Employment**



Sources: US Bureau of Labor Statistics; IHS Global Insight

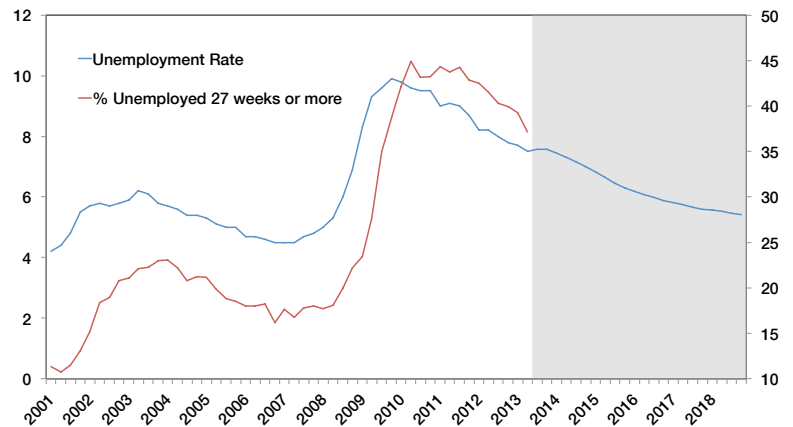
growth since early-2010 has been too slow to restore the US to its previous employment high, which will only be reached in mid-2014 according to forecast.<sup>3</sup> Further, the degree to which the US economy fell below its full sustainable level of employment (termed “full employment” in Figure 1.4) was the most severe of any recession in the modern era. The US economy remains well below its sustainable level of employment, and is forecast to remain so for several more years.

Turning to the unemployment situation, as noted in Figure 1.5, the national unemployment rate peaked at 10 percent during October 2009. This was the second-highest rate experienced during the post-World War II era, exceeded only by the 1982/1983 recession (a peak of 10.8 percent in late 1982). Unemployment has improved substantially over the past three years, and the pace of improvement has increased in the past year. Currently, the US unemployment rate is at its lowest level in four years. Unemployment is forecast to continue to improve substantially over the next several years, however, the economy is not expected to reach its lowest sustainable unemployment rate—in the 5 to 6 percent range—until around 2018.

It is worth noting that the share of all unemployed persons who have been unemployed for the long term (typically defined as 27 weeks or more) rose substantially during the recent recession, and remains at a level that is well above the historic average. As illustrated, the share of all unemployed persons who have been unemployed for the long term rose from 15 percent of unemployed persons in 2007 to around 45 percent by 2010, and remains at around 37 percent. In Figure 1.6 we report the relative position of each of the 50 US states in terms of unemployment as of June 2011. At that time the US unemployment rate was 9.1 percent. We contrast this with the by-state unemployment situation as of June 2013 (see Figure 1.7), when the US rate was 7.6 percent. The figures reveal significant differences in unemployment rates across the states in both time periods. One common thread, however, is that the large majority of states saw their unemployment rate fall into a lower bracket over the two-year window.

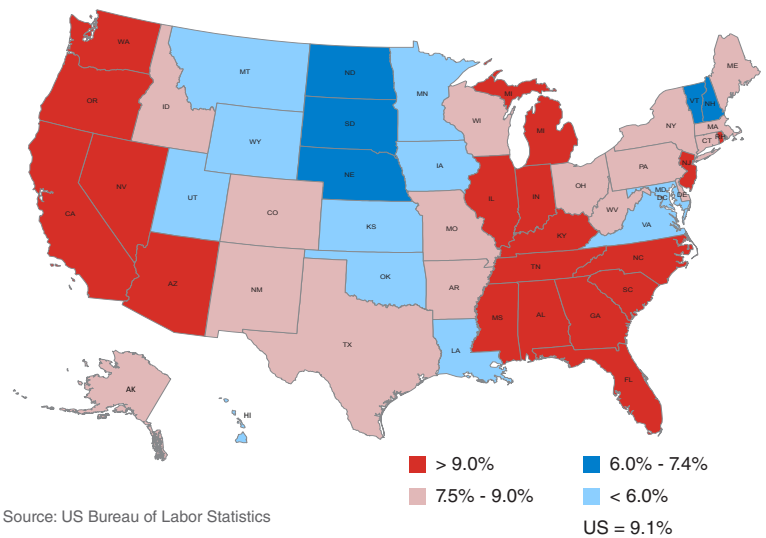
As is well known, the catalyst for the recent financial crisis and economic recession was the dramatic decline that was suffered in the housing market from 2007 to 2009. Fortunately, single-family housing starts have shown notable improvement over the past two years, and the rate of improvement is expected to accelerate

**FIGURE 1.5: United States Unemployment Statistics**



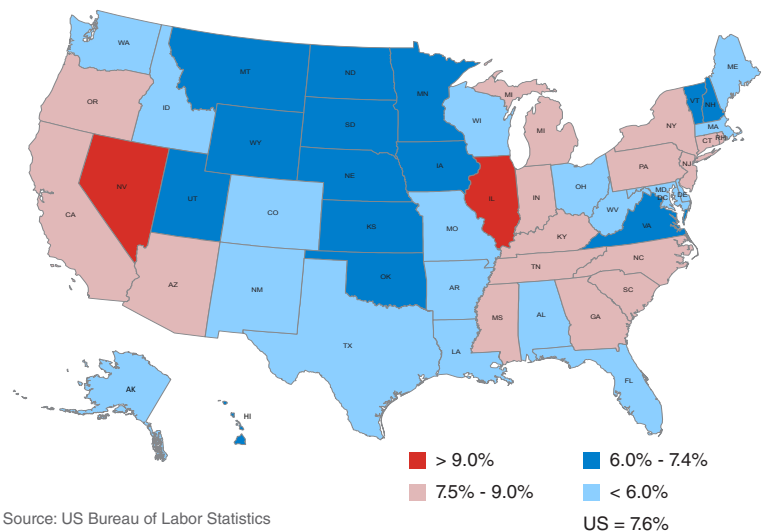
Sources: US Bureau of Labor Statistics and IHS Global Insight

**FIGURE 1.6: Unemployment Rate, June 2011**



Source: US Bureau of Labor Statistics

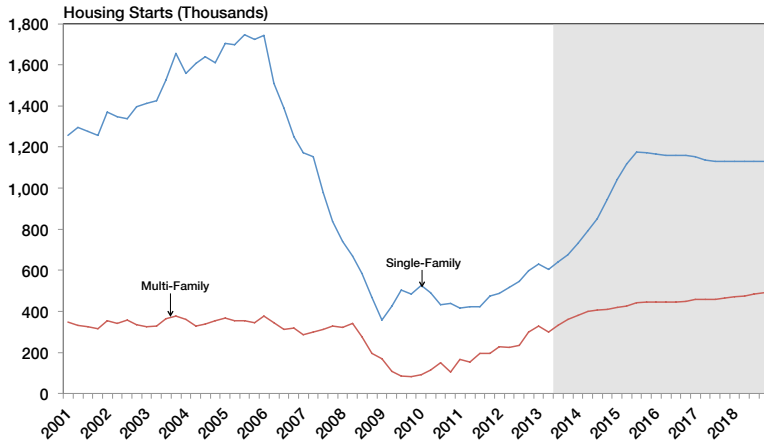
**FIGURE 1.7: Unemployment Rate, June 2013**



Source: US Bureau of Labor Statistics

3. This figure does not account for population growth over the period; doing so would darken the employment growth figure further.

**FIGURE 1.8: United States Housing Starts**

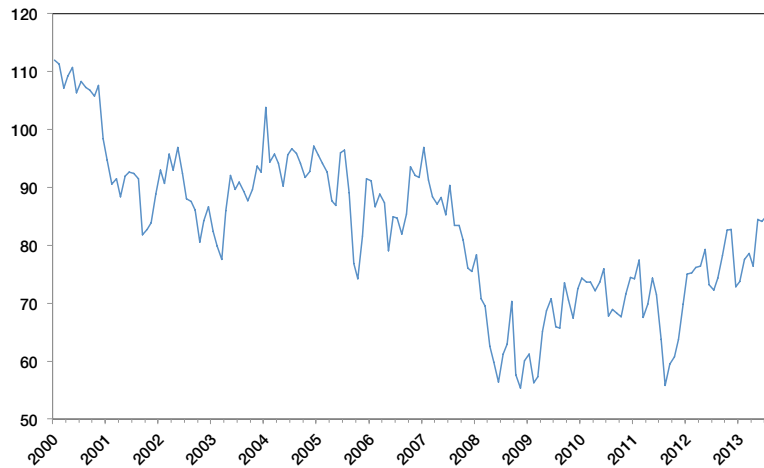


Sources: US Census Bureau and IHS Global Insight

over the next two years, stabilizing around 2015 (see Figure 1.8). Multi-family housing starts have already returned to their pre-recession level, and are expected to continue to grow steadily, further contributing to the economic recovery.

While recessions typically have a catalyst in some exogenous shock (such as the bursting of a housing bubble), falling consumer sentiment is often the key driver of demand during recessions. Typically, the initial recession catalyst reduces demand directly, and thereby output. This drop in output reduces confidence, which reduces demand further, and a vicious cycle ensues. On the upswing of the business cycle, an economic system is unlikely to ever achieve its full potential until confidence is restored.

**FIGURE 1.9: Index of Consumer Sentiment**



Sources: Thomson Reuters, University of Michigan Surveys of Consumers and IHS Global Insight

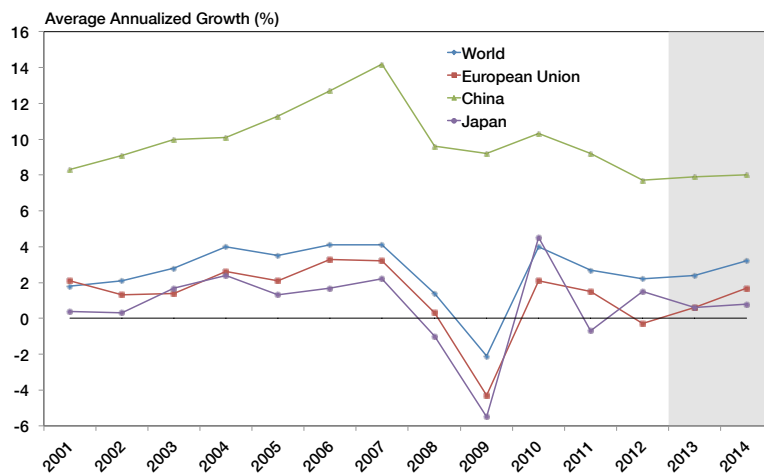
As reported in Figure 1.9, US consumer confidence was in free fall in 2007 and 2008, and hit its all-time low in 2009.<sup>4</sup> However, despite a brief setback during the summer of 2011, consumer confidence has risen steadily since its low point, and nears its pre-recession level.

**CHALLENGES FACING THE US ECONOMY**

While the US economic outlook is improving, the recovery remains fragile as numerous potential threats to continued growth exist. Prominent on this list is the possibility of an economic slowdown among the United States' trading partners, which could threaten US exports. As illustrated in Figure 1.10, while world economic output is expected to grow at around a 3 percent annual rate in 2013 and 2014, the economies of certain trading partners could be weaker or weakening. The European Union (EU), which receives nearly one-fifth of total US exports, experienced a mild recession in 2012 and growth continues to be weak; EU growth is expected to come in at under 1 percent in 2013 and under 2 percent in 2014. Even if it achieves these growth rates, the EU can do little to bolster US exports. And there remains a strong likelihood that EU growth could be weaker than expected given widespread uncertainty surrounding the ongoing debt crisis for several European nations.

Turning to another important US trading partner, Chinese growth is forecast to be around 8 percent, far exceeding the global average. However, that rate is lower than what the country has experienced over most of the past two decades. If Chinese growth continues to slow, it could impact the US economy, in part given that China now accounts for over 7 percent of US exports. Japan's economy remains sluggish, and this trend will likely continue going forward as Japanese growth is expected to come in at slightly less than one percent in 2013 and 2014.

**FIGURE 1.10: Real GDP Growth of the World and Selected Economies**



Source: United Nations

4. Economists have tracked consumer confidence since 1968.

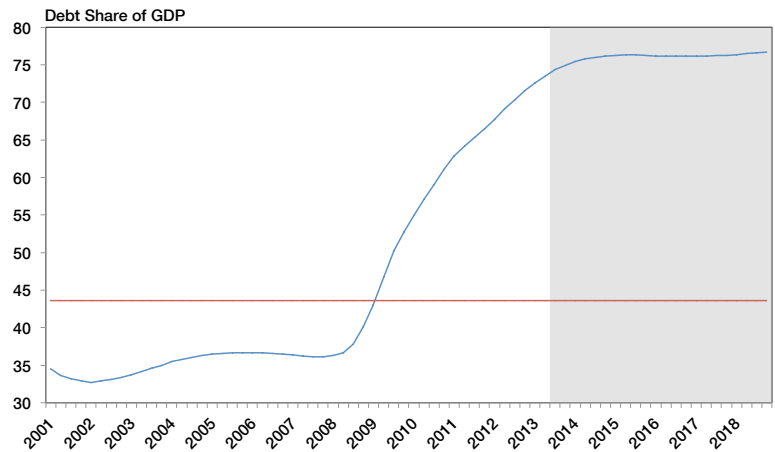
The rising level of US federal government debt is another daunting concern facing the US economy. As depicted in Figure 1.11, federal debt held by the public, which hovered around 36 percent of GDP in 2007, began rising dramatically in 2008 as tax revenues plunged and the federal government ramped up spending in part to stimulate the weakening economy. As of mid-2013, the figure had nearly reached 75 percent of GDP, a rate that is far above the post-World War II average. The figure is forecast to rise slightly over the next year, and remain stable over the next five years. However, in the long-run (not shown) the figure is forecast to explode given the aging of the US population and the additional public benefits that an older population receives, barring any change in public policy. A public debt level that surpasses a critical level can be detrimental to long-run economic prosperity if the public debt reduces private-sector savings and investment activity—a key driver of productivity growth in the long-run.

In a similar vein, in Figure 1.12 we report the federal deficit as a share of GDP. While the historical average deficit/GDP ratio is around 1.8 percent, the ratio surged to around 10 percent in 2009—its highest level since World War II. The ratio remained at that level through 2011, and has fallen substantially as the US economy has improved and as federal spending has fallen. The deficit is predicted to continue to fall through 2016, but will begin to rise again beyond that point for the same reasons described above.

The recent dynamic involving US federal government debt is closely related to the increase in transfer payments from the US federal government. Examples of transfer payments include social security, unemployment benefits, welfare benefits, Medicare, and Medicaid. As illustrated in Figure 1.13, transfer payments increased substantially in 2008, reaching a high between 18 and 19 percent of personal income, compared to a post-World War II average of just under 14 percent. This increase is attributable to two major factors: a) falling income and rising unemployment during the recession, and b) more generous public policy, such as the extension of unemployment benefits. Since recovery began, the share has fallen to below 18 percent of GDP and is expected to remain stable for the near term. In the long-run, the figure is expected to rise again substantially with the aging of the US population, barring any policy changes, such as a reduction in benefits or an increase in the social security retirement age.

As reported in Figure 1.14 on the following page, inflation has been stable in the US since the mid-1980s, rarely moving outside of the 1.5 to 3.5 percent range. And while inflation did reach a slight spike of close to 4 percent for a brief period in 2008 due to rising oil prices, inflation has been modest for the past few years. When food and

**FIGURE 1.11: US Federal Debt Held by the Public as a Share of GDP**



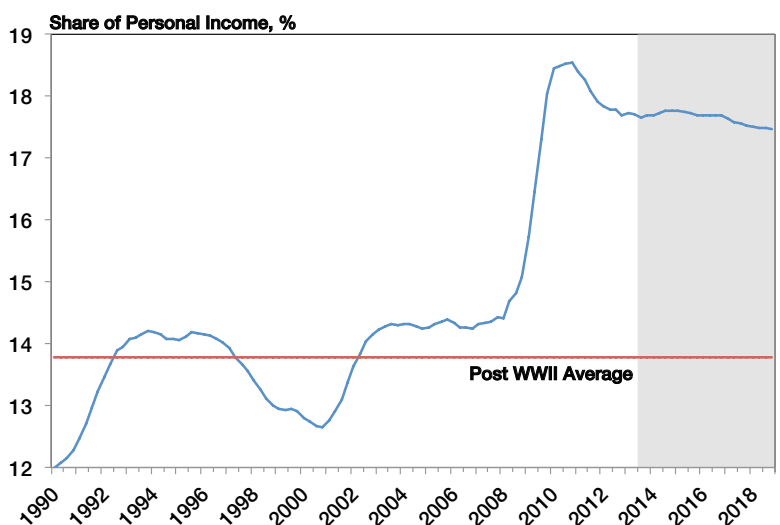
Sources: US Bureau of Economic Analysis and IHS Global Insight

**FIGURE 1.12: Federal Deficit Share of GDP**



Sources: US Bureau of Economic Analysis and IHS Global Insight

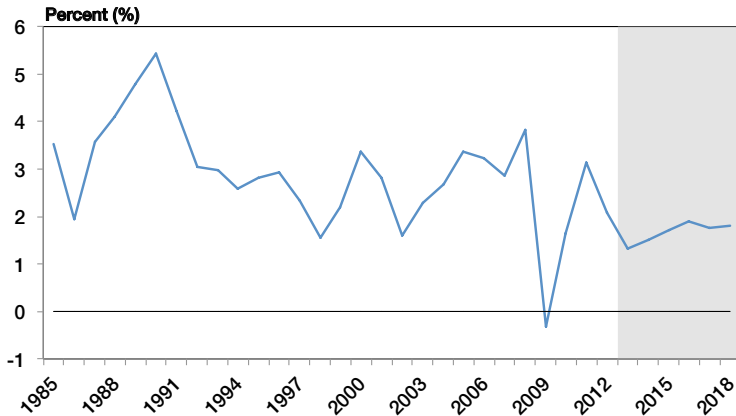
**FIGURE 1.13: US Transfer Payments as a Share of Personal Income**



Sources: US Bureau of Economic Analysis and IHS Global Insight

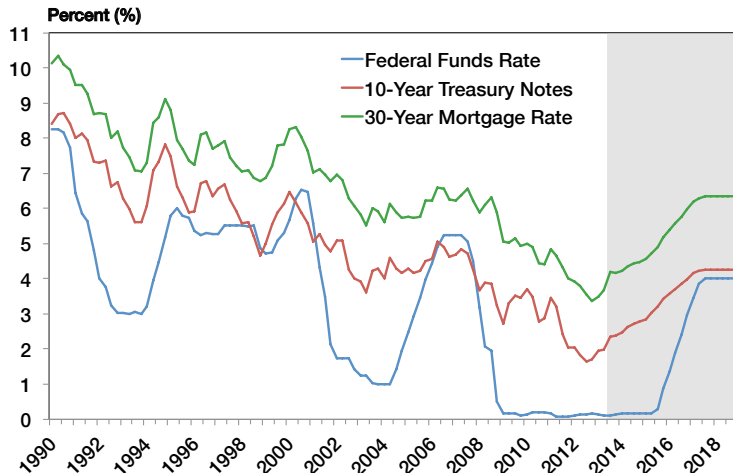
energy prices are excluded (not represented in figure), for the past couple of years inflation has been below the target of 2 percent that monetary policymakers hope to achieve, and is expected to remain so for the near future.

**FIGURE 1.14: United States Inflation Rate**



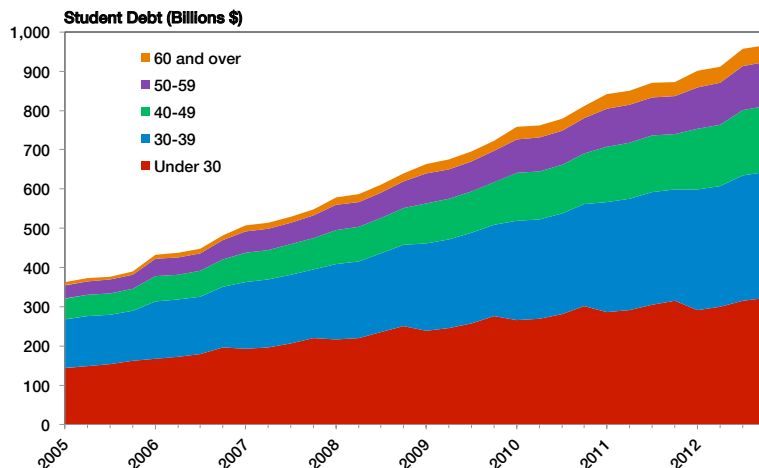
Sources: Based on the Consumer Price Index, US Bureau of Labor Statistics and IHS Global Insight

**FIGURE 1.15: Select United States Interest Rates**



Sources: Federal Reserve Board of Governors, Freddie Mac, and IHS Global Insight

**FIGURE 1.16: United States Student Loan Debt by Age Group**



Sources: Federal Reserve Bank of New York Consumer Credit Panel and Equifax

However, there is some chance that the threat of inflation could reemerge. The US Federal Reserve (Fed) has taken unprecedented steps to stabilize the economy since 2008, and in doing so has increased the monetary base—primarily the volume of excess reserves held by banks—dramatically through its purchase of US Treasury Securities and other assets, such as private-sector mortgage-backed-securities. Thus far, this monetary stimulus has not translated into higher inflation due to continued modest demand and banks' continued reluctance to lend. However, inflationary pressures have the potential to build as lending and the broader economy improve. As that happens, the Fed will be required to remove this excess liquidity from the monetary system to avoid rising inflation. The uncertainty stems from the fact that monetary policy is in uncharted territory given the volume of the monetary stimulus and the nature of the asset purchases.

A related concern is the inevitable rise in interest rates in the US economy in coming years. This rise will, in part, stem from the Fed's actions to reverse the monetary stimulus discussed above. While interest rates have been at or near historic lows in the past year or so, their coming rise is inevitable. If the rise is too sudden, it could weaken investment and consumer spending growth in the US considerably. On the other hand, if the Fed waits until too late to allow rates to rise, inflation would be a concern. Given the anticipation surrounding the rise in interest rates, financial markets can move very quickly, as evidenced by this summer's brief and sudden rise in interest rates in response to Fed commentary. Figure 1.15 reports the forecast for three key US interest rates, although much uncertainty remains surrounding the exact timeframe of this increase.

The world's demand for oil has increased steadily over the past decade—mostly due to continued growth in the developing countries such as China and India—except for a short-lived decline during the recent recession. The supply, while increasing, has not been able to keep up with the rising demand, causing oil prices to increase considerably for most of the past decade. However, oil prices have declined slightly over the past year or so, and are forecast to continue to decline slowly over the next five years. Continued instability in the Middle East could threaten this expected decline and a substantial rise in oil prices could put the US economic recovery in jeopardy.

A final concern that we consider is student debt. As illustrated in Figure 1.16, student debt has risen considerably in recent years, more than doubling the level just 8 years ago. The average student loan balance has also risen by more than 60 percent over the same period. If student debt continues to rise at this rate, this process could reduce educational attainment in the nation and thereby damage long-run productivity.

## CHAPTER 2: THE WEST VIRGINIA ECONOMY

### RECENT ECONOMIC PERFORMANCE

West Virginia's economic recovery remains firmly in place, although gains have been somewhat inconsistent over the past several quarters.<sup>5</sup> Following nine consecutive quarters of job growth between the first quarters of 2010 and 2012, statewide nonfarm employment has slipped in three of the last five quarters, including a 0.1 percent decline during the second quarter of 2013. Despite this recent up-and-down showing, jobs have increased by approximately 3,000 (0.4 percent) in the past year, and the overall level of employment within the state is down only slightly from the all-time high observed during the first quarter of 2013. By comparison, even with job gains nationwide averaging slightly less than 200,000 jobs per month through the first half of 2013, total US employment remains 1.6 percent below the pre-recession peak.

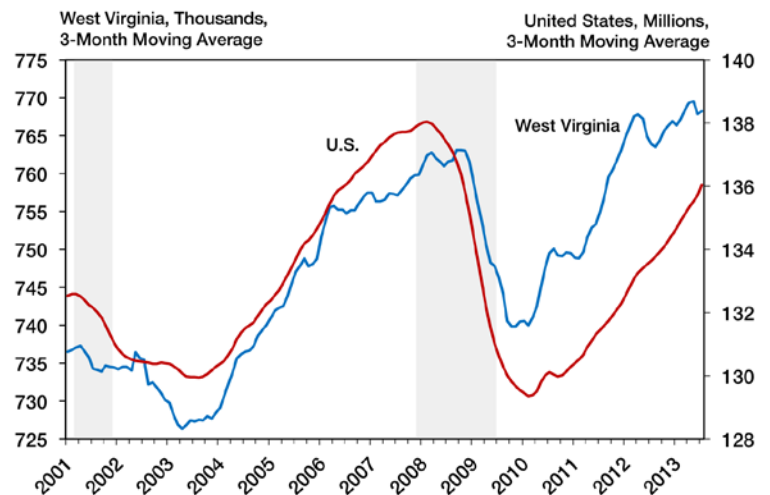
The natural resources and mining sector has been the largest contributor to statewide net job growth over the past few years, adding an estimated 2,300 workers since the second quarter of 2012. With the state's natural gas production more than doubling within the past two calendar years, drilling and extraction throughout the Marcellus and Utica Shale formations have provided a significant boost to payrolls. In addition, the skyrocketing pace of natural gas production has buoyed West Virginia's overall energy sector as coal production trended lower over the course of calendar year 2012.

Retailers have been fairly consistent with respect to expanding payrolls during the past three years and have been able to recover just over half of the jobs lost during the recession. The industry has benefited from above-average growth in per capita personal income levels, as well as a handful of new retail developments in the state, including the new Cabela's in Charleston.

Businesses operating within the state's leisure and hospitality sector in southern West Virginia have likely benefited from ramping up their operations to host the thousands of families attending the National Boy Scout Jamboree. Also, a recovering national economy has improved the backdrop for national-level tourism and travel spending activity. While this sector has expanded overall, the state's gaming industry has dampened growth due to venues facing increased competition from new resorts in neighboring states.

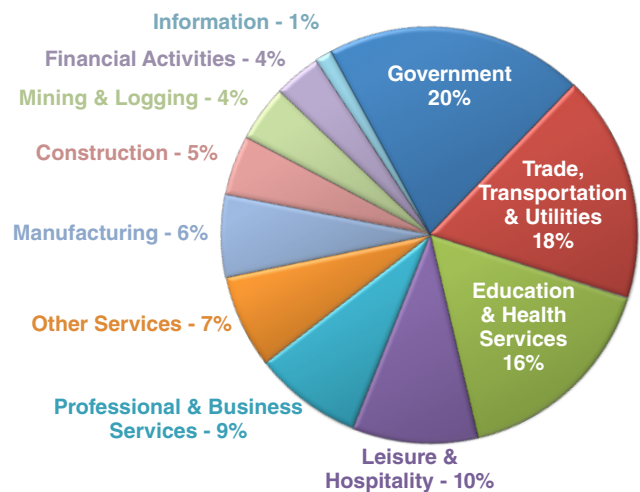
The construction sector's performance has been uneven for the past year, but the sector is now on much firmer footing having added 3,000 jobs since bottoming out just over two years ago. A nascent

FIGURE 2.1: Total Employment



Source: US Bureau of Labor Statistics  
\*Shaded regions indicate recessions

FIGURE 2.2: West Virginia Employment Distribution by Sector (2012)

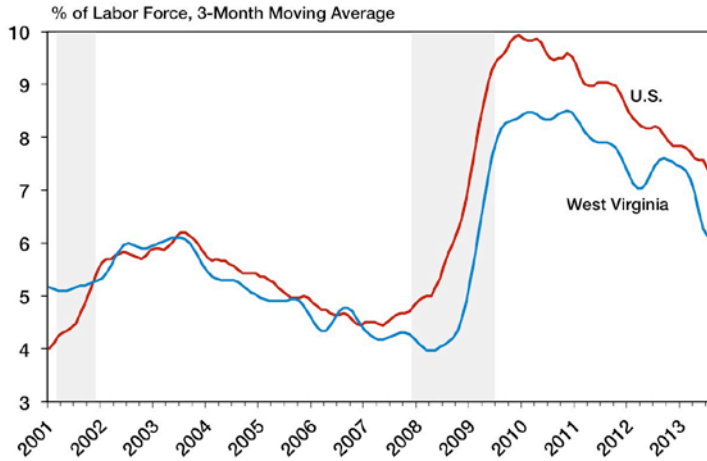


Source: US Bureau of Labor Statistics

recovery in home-building activity and booming growth in natural gas production have helped the sector's employment to rise and offset what has been an inconsistent nonresidential segment and still-falling infrastructure spending. Education and health services providers were able to avoid any prolonged weakness in hiring activity throughout the recession and lackluster economic recovery. Employment has slipped somewhat to date in 2013, but the sector's job numbers still rose by 0.9 percent on a year-over-year basis during the second quarter.

5. Sources for historical information are noted in each figure.

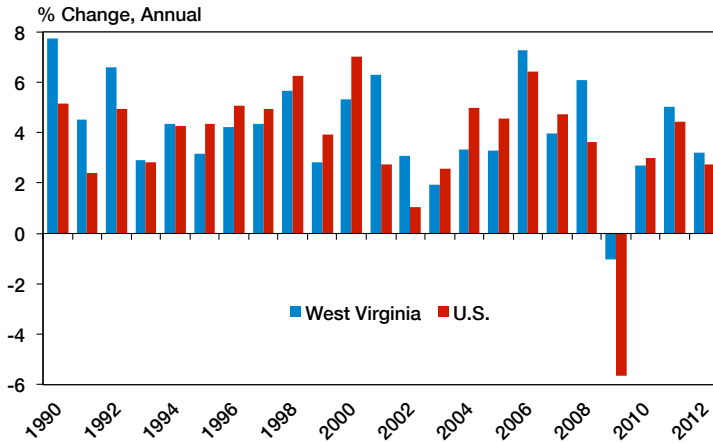
**FIGURE 2.3: Unemployment Rate**



Source: US Bureau of Labor Statistics  
 \*Shaded regions indicate recessions

Elsewhere, manufacturing employment has held relatively steady since the national economic recession ended, but the public sector, which accounts for approximately one in five jobs within the state, is struggling to add jobs. Even as hiring by the state government has improved, local governments and federal agencies that operate within the state have experienced virtually no net job growth over the past two years. Finally, the broadly-defined transportation and utilities sector continues to shed workers, but the recent losses have been felt almost entirely within the utilities side as a result of several power plant closures. After climbing to 7.6 percent by the third quarter of 2012, West Virginia’s unemployment rate has fallen rapidly in each subsequent quarter and currently stands at just over 6 percent—its lowest mark since early 2009—as of the second quarter of 2013. Nationally, the unemployment rate stood at 7.6 percent during the second quarter, leaving the gap between the state and national rates at its largest since mid-2010.

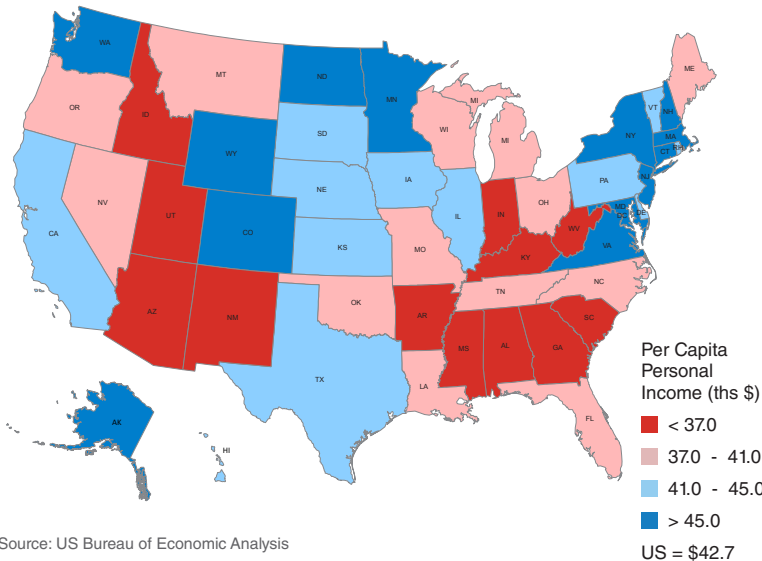
**FIGURE 2.4: Per Capita Personal Income Growth**



Source: US Bureau of Economic Analysis

Although the fall in the state’s unemployment rate is certainly good news, it cannot be strictly interpreted as a sign of a robust labor market. Outside of a brief run-up during the mid-2000s, West Virginia’s labor force participation rate has been on a downward trend for more than a decade. During the first half of 2013, this metric has averaged just below 54 percent. Likewise, the employment-to-population ratio has hovered around 50 percent since 2010, indicating only half of the state’s (non-institutionalized) population aged 16 and older holds a job. Nationally, these figures have also declined significantly versus their pre-recession levels. Currently the national labor force participation rates stands at 63.4 percent while the national employment-to-population ratio stands at 58.6 percent.

**FIGURE 2.5: Per Capita Personal Income (2012)**



Source: US Bureau of Economic Analysis

Per capita personal income in West Virginia reached \$34,477 in 2012, which represented a 3.2 percent gain over the previous calendar year. Although this represents a deceleration from the 5 percent annual increase posted in 2011, it marks the second consecutive year that statewide growth has outpaced the national average. Overall, per capita incomes have increased at an average annual rate of 2.5 percent since 2008—a rate of growth that ranked second only to North Dakota.

With its comparatively solid pace of income growth in recent years, West Virginia has managed to close its per capita personal income gap with the rest of the nation. By 2012 the state’s per capita personal income has increased to 80.8 percent of the US average, the highest reading for this metric since 1978. Nonetheless, income levels within the state still rank low from a broader national perspective, ranking higher only than Mississippi, Idaho and South Carolina, respectively.



Growth in worker pay has helped to bolster personal income levels within the state. Average hourly earnings within the state have climbed at an average annual rate of 2.5 percent since 2008 on a nominal basis, increasing 3.3 percent between 2011 and 2012 alone to an hourly rate of \$19.56. The natural resources and mining sector garnered the highest hourly rate at \$27.82 per hour - 42 percent higher than the state average. Wage rates appear to be increasing at an even stronger pace during 2013. Preliminary data show the average hourly rate jumped 4.8 percent through the first six months of 2013 compared to the same period a year ago. The natural resources and mining sector has been a strong contributor, registering a 10.3 percent rate of growth since the first half of 2012.

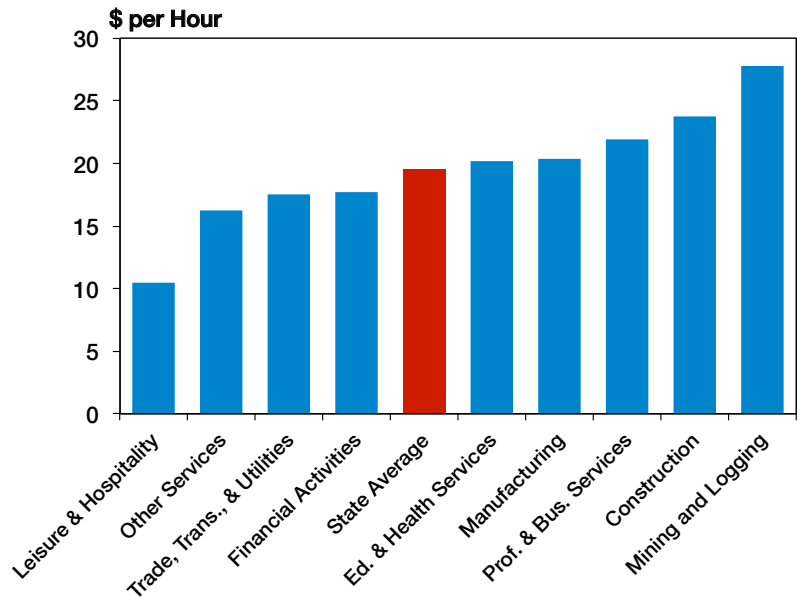
Inflation-adjusted gross domestic product (GDP) in West Virginia expanded 3.3 percent during 2012, beating the 2.5 percent rate of growth observed nationally. This growth also ranked West Virginia 10th among all states. In addition, real GDP growth in the state has outpaced the national average in each of the last four years. The mining sector has served as a particularly strong booster to topline growth in real state output, registering more than a 22 percent increase compared to 2011 and an 8.7 percent annual rate since 2008.

Construction also bounced back with a strong performance in 2012, with real GDP increasing 16.6 percent for the year. Surprisingly, goods-producing industries (including manufacturing) accounted for all of the state's net growth in real GDP, while total real output from the service-producing side posted a small decline. Wholesale and retail trade led in real GDP growth among service sectors, having gained 2.8 and 2.7 percent, respectively. Financial services, information, and transportation and utilities all reported a drop in real GDP.

Population growth in West Virginia slowed to a rate of approximately 0.1 percent per year between 2010 and 2012. Since the state has consistently seen deaths outnumber births, short-term fluctuations in year-to-year growth in the state's population are influenced almost entirely by changes in net domestic and international migration flows. Consequently, the smaller net in-flows of migrants have caused population growth to slow down appreciably during the past two years.

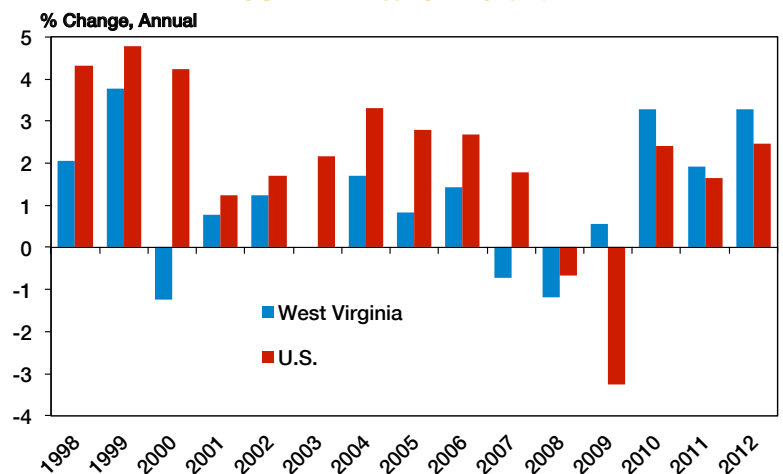
In addition, gains for the state as a whole are concentrated within a handful of counties, namely the Eastern Panhandle region and Monongalia County. Smaller migration flows into Berkeley and Jefferson counties in recent years have been a factor in weighing down statewide population growth. The Greater Washington, DC area's downturn in housing prices left many households, who would potentially move to the

FIGURE 2.6: Average Hourly Earnings by Major Sector (2012)



Source: US Bureau of Labor Statistics

FIGURE 2.7: Real GDP Growth



Source: US Bureau of Economic Analysis

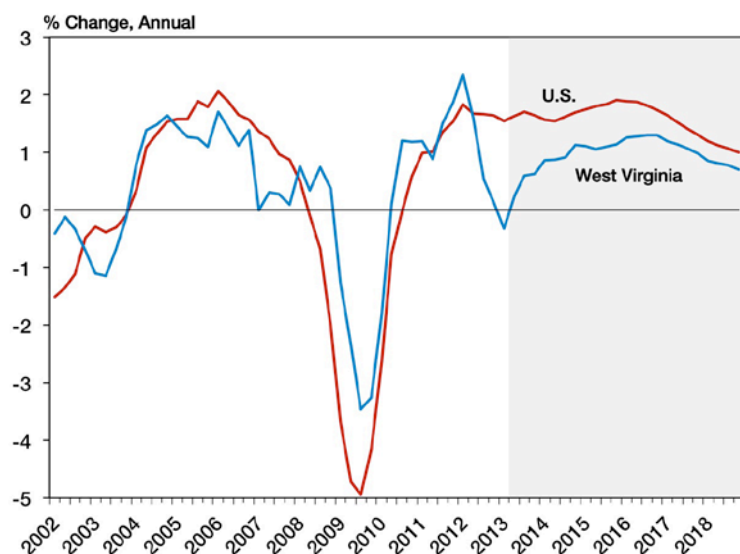
Eastern Panhandle, unable to sell their current homes and “locked” them in place. Nonetheless, Berkeley and Jefferson counties, along with Monongalia County, represented the three fastest-growing counties in the state over the 2010 to 2012 time period. Overall, 16 counties experienced cumulative increases in population totaling over 11,500 residents, while the remaining 39 counties saw their populations contract by more than 9,100 people.

**FIGURE 2.8: Summary Population Profiles**

	West Virginia	United States
Total Population (2012)	1,855,413	313,914,040
% Population Under 18 (2012)	20.7%	23.5%
% Population 65 Years + (2012)	16.8%	13.7%
Population with Less than High School Diploma (2011, % of pop. 25 yrs. +)	22.2%	21.6%
Population with High School Diploma, No College (2011, % of pop. 25 yrs. +)	41.6%	28.4%
Population with Some College, No Degree (2011, % of pop. 25 yrs. +)	17.7%	21.2%
Population with Bachelor’s Degree or Higher (2011, % of pop. 25 yrs.+)	18.5%	28.5%
Median Age (2012)	41.7	37.4
Median Household Income (2011)	\$38,482	\$50,502
Mean Household Income (2011)	\$53,269	\$69,821
Average Household Size (2011)	2.46	2.64

Source: US Census Bureau

**FIGURE 2.9: Employment Growth Forecast**



Sources: Bureau of Labor Statistics; Workforce WV; WVU BBER Econometric Model; IHS Global Insight  
\*Note: WV data use covered employment; Shaded region represents the forecast period

## WEST VIRGINIA OUTLOOK

Expectations for the US and broader global economy during the forecast horizon will have a significant impact on West Virginia’s performance going forward.<sup>6</sup> The forecast calls for the economic recovery to continue over the next five years. Projected US economic growth during the 2013 to 2018 outlook period helps to position West Virginia’s economy to remain in recovery mode. While job growth within the state is forecasted to slip somewhat from the strong gains of the past two years, we estimate that employment will increase roughly 1 percent per year through 2018, causing it to lag behind the 1.6 average annual rate of growth in total US payrolls during the next five years.

In terms of our expectations for West Virginia’s major sectors, job growth in natural resources and mining is expected to drop off considerably from the pace of gains observed in recent years. The downshift to a 0.3 percent average annual rate through the end of 2018 is a general reflection of diverging market trends for coal and natural gas. Indeed, coal mining employment is expected to fall slightly over the course of the forecast horizon, directly as a result of coal production trending lower from current levels. Growth in marketed natural gas production is expected to remain strong in 2013, but should begin to slow appreciably in 2014; however, the sizable deposits available from the Marcellus, Utica, and Devonian shale formations, along with the expectation that natural gas will likely capture a growing share of electricity generation during the outlook, point to continued growth in gas production and support services employment.

The construction sector’s prospects are solid. With areas such as the Eastern Panhandle expected to see homebuilding activity pick up in concert with the broader US housing market recovery, our forecast calls for construction sector employment to increase at an annual rate of 2.3 percent between 2013 and 2018. Employment within the manufacturing sector will inch slightly higher during the forecast horizon, which still represents a dramatic improvement from the previous five-year period in which the industry shed nearly 10,000 jobs. Rising demand for autos and products destined for the housing market bolster the sector’s prospects, as does global export demand. However, continued productivity gains within some individual industry segments, along with persistent structural issues plaguing others, will weigh on the sector as a whole.

We expect the service-producing side of the economy will experience the strongest rates of job growth during

6. All forecast estimates for this document are derived from the West Virginia University Bureau of Business & Economic Research Econometric Model unless otherwise noted.

the outlook period. Education and health services employment will expand at a rate of 2.1 percent annually for the next five years, largely reflecting our anticipation of increased demand for health care services coming from the state's large (and growing) elderly population. While Medicare and Medicaid will continue to grow and remain an important piece of the state's health care funding infrastructure, federal initiatives to restrain spending do pose a risk to the forecast.

With a stronger national economic recovery comes increased demand for business support services, spanning such activities as accounting, legal services, management consulting, IT support, and call center operations. As a result, rising demand for these functions should boost employment in the state's professional and business services sector during the forecast horizon.

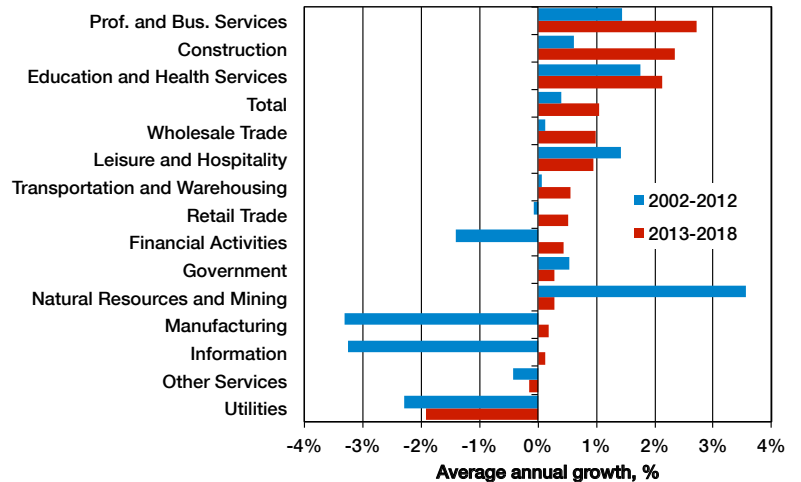
Retailers are expected to add jobs over the outlook period, but we have forecasted slow growth of 0.5 percent per year due to the state's prevailing demographic trends somewhat offsetting a likely increase in real personal incomes. While the state's status as a regional tourism destination and continued improvements in the underlying demand for travel and tourism will boost leisure and hospitality employment, the broader regional expansion of gaming is expected to blunt the sector's growth prospects. Wholesale trade and transportation and warehousing sectors are expected to see better prospects for job growth over the next five years, due in part to opportunities created by the Eastern Panhandle's location along major transportation corridors and proximity to a consistently-growing Washington, DC market.

Public sector employment is expected to increase slowly going forward. Our forecast calls for West Virginia's federal workforce to shrink as a result of continued focus on cutting costs as a way of closing the federal budget deficit. In terms of overall state and local government employment, we anticipate modest gains in employment during the 2013 to 2018 time period, but both of these levels of government will also be under pressure to cut costs while meeting their legislated mandates for providing services to the state's residents.

A combination of sustained job growth and demographic trends will push the state's unemployment lower during the forecast period. Indeed, we anticipate the West Virginia unemployment rate to follow the broader national trend by falling steadily from its current rate of 6.1 percent to 4.5 percent by the end of 2018. The rate is expected to remain below the national unemployment rate throughout the outlook period.

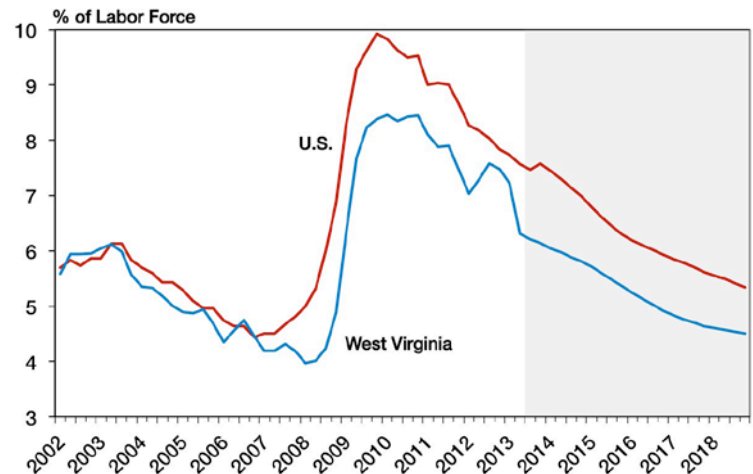
With more of the state's current workforce entering retirement age and likely exiting the labor force, gains in

**FIGURE 2.10: West Virginia Employment Growth Forecast by Sector**



Sources: Workforce WV; WVU BBER Econometric Model

**FIGURE 2.11: Unemployment Rate Forecast**

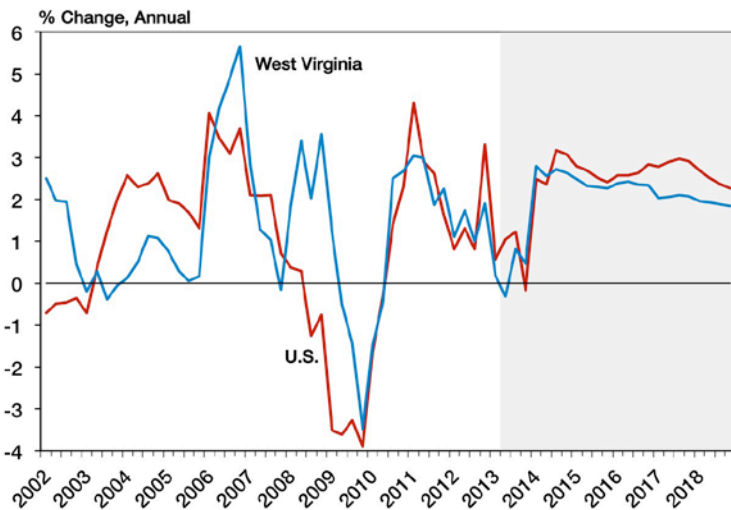


Sources: Bureau of Labor Statistics; WVU BBER Econometric Model; IHS Global Insight  
 Note: Shaded region represents the forecast period

employment will outstrip growth in the labor force and push the unemployment rate to low levels. Thus, a low jobless rate during the forecast is more of a reflection of the state's demographic realities than a truly robust labor market.

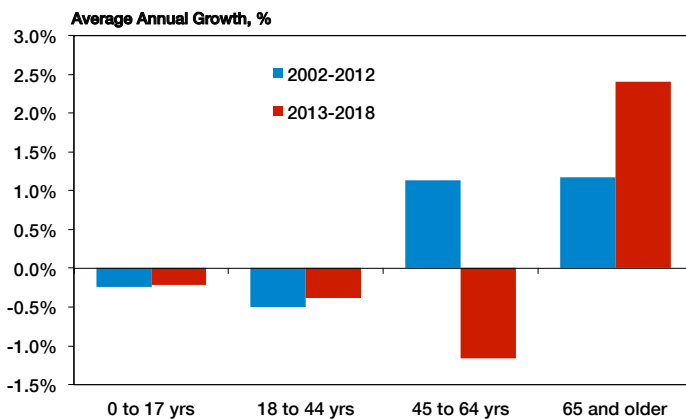
Real per capita income growth will likely be slow in 2013, with an expected increase of only 0.3 percent, reflecting the end of the payroll tax cut earlier this year. For the outlook period as a whole, job growth will translate into gains in inflation-adjusted per capita income. Overall, our forecast calls for West Virginia to see real per capita incomes expand at an annual average rate of 2.3 percent, marking an improvement from the previous five-year period. However, this marks a slower increase in real incomes than the 2.7 percent per annum rate forecasted for the rest of the nation.

**FIGURE 2.12: Real Per Capita Personal Income Growth Forecast**



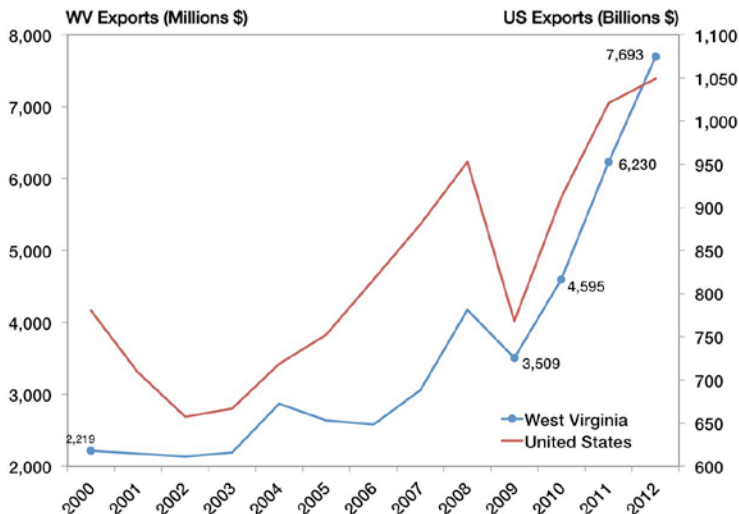
Sources: Bureau of Economic Analysis; WVU BBER Econometric Model; IHS Global Insight  
 Note: Shaded region represents the forecast period

**FIGURE 2.13: West Virginia Population Growth by Age Group**



Sources: US Census Bureau; WVU BBER Econometric Model

**FIGURE 2.14: United States and West Virginia Exports**



Sources: International Trade Administration and US Department of Commerce  
 \*Figure Adjusted for Inflation

As economic growth begins to lag behind national and regional averages going forward, West Virginia will likely have greater difficulty attracting more residents than it loses. Since births are outnumbered by deaths and the recent shrinking of net in-migration flows will likely continue, the state's population will decline slightly over the next five years. In addition, there will likely be an appreciable aging-in-place of the population, wherein the state's under-65 age groups shrink and the 65-and-over cohort swells. This generally mirrors the broader national trend, where more members of the baby boom generation will likely move into the 65 and older age group. However, since West Virginia contains a share of residents slated to enter this cohort (currently aged 60 to 64) during the outlook period nearly 2 percentage points higher than the rest of the nation, this process of aging in place will occur more rapidly in the state.

**WEST VIRGINIA'S EXPORTS**

Exports have made important contributions to West Virginia's economy for many years, but their importance has increased substantially recently.<sup>7</sup> In 2000, exports accounted for 5.4 percent of West Virginia's GDP; by 2012, that figure had exploded to 16.3 percent.<sup>8</sup>

Exports were a major factor that helped West Virginia withstand the impact of recent national and global recessions. Between 2000 and 2009, the state's exports grew from \$2.2 billion to \$3.5 billion, an average of 5.2 percent per year (Figure 2.14) in inflation adjusted terms. This compares to a slight decline in overall US exports over the same period. This figure is also far above West Virginia's overall GDP growth of 0.5 percent per year during the same period.

Since 2010, state exports have grown even more strongly, partly driven by the US and global economies' gradual economic recovery. West Virginia exports rose in value to \$4.6 billion, \$6.2 billion and \$7.7 billion in 2010, 2011, and 2012, respectively. Overall, West Virginia exports grew on average nearly 30 percent per year over the last three years in inflation adjusted terms, well above the state's GDP growth rate of 2.8 percent per year over the same period. US exports grew at an annual average rate of 11 percent over the 2010 to 2012 period.<sup>9</sup>

7. State exports measure the total physical movement of state-produced merchandise out of the United States to foreign countries. Merchandise sold to other states within the US is not counted as state exports.

8. The share is directly computed as current value of exports divided by current state GDP.

9. Unless otherwise noted, throughout this section all dollar figures are inflation adjusted and expressed in chained 2000 dollars.

### West Virginia Export Commodities

The strong growth in West Virginia’s exports is primarily driven by strong growth in coal exports, especially since 2008. In 2002, West Virginia coal exports reached \$191 million, accounting for 9.0 percent of the state’s total exports. In 2008, coal exports jumped to more than \$1.5 billion, which accounted for 37.1 percent of the state’s total exports, and became the most-exported commodity in the state. After slowing in 2009 due to the global recession, coal exports came back strong as the global economy improved. In 2010, coal exports rose to just below \$2 billion, jumped to \$3.7 billion in 2011, and rose further to \$5 billion in 2012 (Figure 2.15). Accordingly, the share of coal in the state’s total exports jumped from 43.6 percent in 2009 to 64.9 percent in 2012. Likewise, the contribution of coal exports to the state’s GDP increased from 1 percent in 2000, to 3.5 percent in 2009, and 10.6 percent in 2012.<sup>10</sup> It is important to note, however, that only around 27 percent of coal produced in West Virginia in 2012 was exported.

Resin<sup>11</sup> is currently the second most-exported commodity in the state. It was the top export commodity in the early 2000s before being surpassed by coal in 2008. Export of resin increased gradually from \$579 million in 2002 to \$704 million in 2012, or a 2 percent increase per year on average.

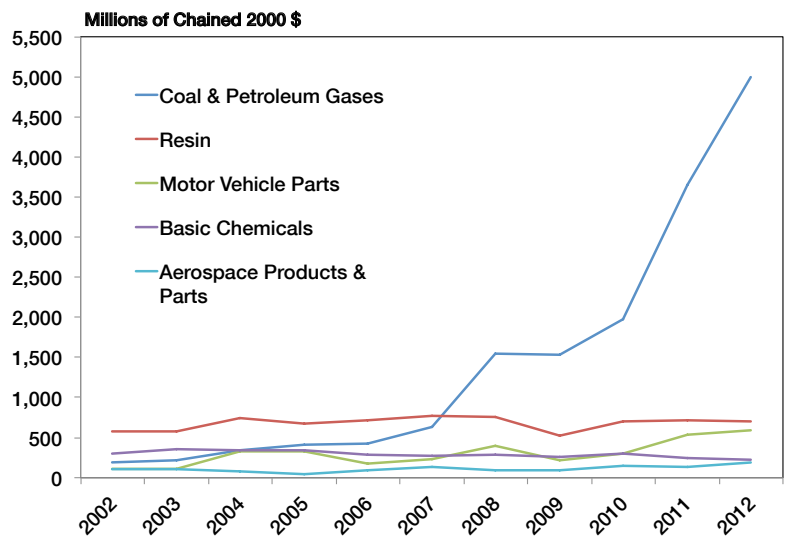
The third most-exported commodity is motor vehicle parts, with \$589 million in exports in 2012, followed by basic chemicals (\$224 million), and aerospace products and parts (\$192 million). Except for exports of basic chemicals, which declined slightly over the last three years, exports of motor vehicle parts and aerospace products continued to increase gradually between 2002 and 2012.

Figure 2.16 lists the state’s top 10 exports in 2012. As in the US, most of West Virginia’s exports are manufacturing commodities. The state’s coal export, however, is what makes West Virginia’s exports distinctly different from those of the nation. This commodity is more than just the largest export in West Virginia, it accounted for nearly 65 percent of the state’s total exports in 2012. Indeed, West Virginia’s coal exports made up nearly half of the total US coal exports to the world in 2012.

### Where Do West Virginia Exports Go?

Exports connect West Virginia’s economy to countries around the world. In 2012, West Virginia businesses exported to 136 countries in total. The largest volume of the state’s exports go to familiar destination countries in North America, Europe, and Asia, while the state also exports smaller quantities of goods to countries in South America, Africa, the Caribbean, and Oceania-Australia. Overall, the value of West

**FIGURE 2.15: West Virginia Top Five Export Commodities**



Sources: USA Trade Online, Foreign Trade Division, US Census Bureau  
 \*Figure Based on Export Values in 2012; Figure Adjusted for Inflation

**FIGURE 2.16: West Virginia Top 10 Commodity Exports (2012)**

NAICS	Export Commodity	\$ millions (of chained 2000 dollars)	Share (%)
2121	Coal & Petroleum Gases	4,996	64.9
3252	Resin, Synthetic Rubber, & Artificial Synthetic Fibers & Filaments	704	9.1
3363	Motor Vehicle Parts Manufacturing	589	7.7
3251	Basic Chemicals Manufacturing	224	2.9
3364	Aerospace Products & Parts	192	2.5
3391	Medical Equipment & Supplies	111	1.4
3313	Alumina and Aluminum Production & Processing	76	1.0
3256	Soaps, Cleaning Compounds & Toilet Preparations	75	1.0
3345	Navigational/measuring/medical/control Instrument	72	0.9
3241	Petroleum & Coal Products Manufacturing	70	0.9
--	All Export Commodities	7,693	100.0

Sources: USA Trade Online, Foreign Trade Division, US Census Bureau

<sup>10</sup>. This is computed as value of exports divided by state GDP.

<sup>11</sup>. Here “resin” refers to a larger group of materials that includes resin, synthetic rubber, artificial synthetic fibers, and filaments (NAICS 3252).

Virginia's exports to these countries has gradually increased over time (Figure 2.17).

Europe was the top destination for West Virginia exports, having surpassed North America in 2008, purchasing a \$3.2 billion worth of the state's exports in 2012. In 2011, Asia also surpassed North America and became the second-largest West Virginia export destination region, purchasing \$2.2 billion in 2012. North America, not including the US, was the third-largest export destination, purchasing \$1.4 billion of West Virginia's 2012 exports.

Canada remains West Virginia's largest export destination when considering individual countries. West Virginia's

exports to Canada have gradually increased over recent years, from \$649 million in 2000 to \$1.2 billion in 2012, or a 5.3 percent increase on average per year. The share of state's exports to Canada, however, declined from 29.2 percent to 15.7 percent during the same period, implying that exports to other countries, primarily several countries in Asia and Europe, have grown faster.

The Netherlands became West Virginia's second-largest export destination country in 2011. Dutch demand for coal increased tremendously in recent years, and as a result, West Virginia's exports to the Netherlands increased remarkably from \$78 million in 2000 to \$646 million in 2012, a 19.3 percent increase on average per year.

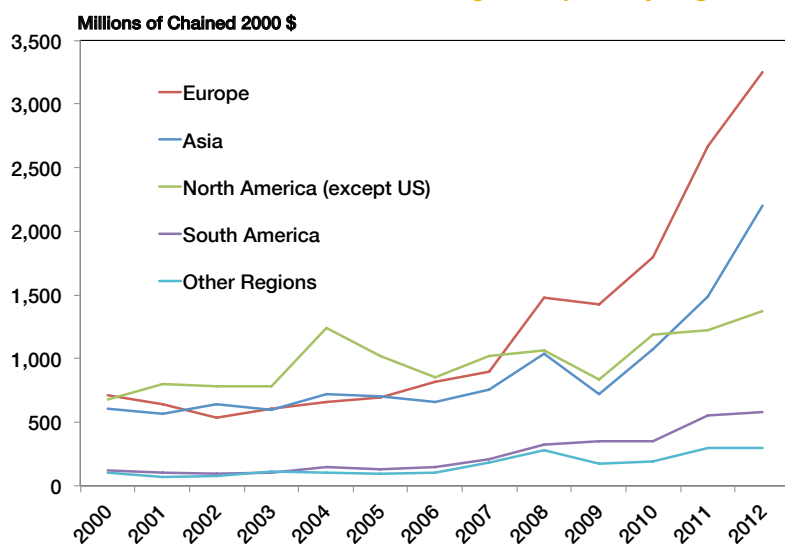
The next-three-largest of West Virginia's export destination countries in 2012 were China, Japan, and India. These three countries accounted for more than 70 percent of West Virginia's exports to Asia. Among the Asian countries, Japan used to be West Virginia's largest export destination, but China took its place in 2012. Overall, the state's exports to China, India, and Japan increased remarkably from \$291 million in 2000 to \$1.6 billion in 2012, a 15.4 percent increase on average per year.

Table 2.18 lists West Virginia's top 10 export destination countries for 2012. In general, the state's exports to each of these top 10 destinations gradually increased over time. In total, exports to these top 10 countries increased from \$1.4 billion in 2000 to \$5.5 billion in 2012, a 12 percent increase on average per year. In 2012, the state's exports to the top 10 destination countries accounted for 71.9 percent of state's exports to the world.

While exports to these top 10 countries are primarily coal, exports to Canada, China, and Japan only contain 16.2 percent, 55.4 percent, and 51.1 percent coal. In 2012, the majority of the state's exports to Canada were transportation equipment, which accounted for 46.2 percent, followed by coal with 16.2 percent share, and chemicals with 13.5 percent share. Though West Virginia's exports to China and Japan are still primarily coal, chemicals also make up an important portion of exports to those countries.

Overall, exports are expected to continue to contribute strongly to the West Virginia's economy. The demand for the state's exports is expected to remain strong as the global economy continues to improve. However, some challenges do exist: China's economy, one of the state's top export destinations, is predicted to grow more slowly than usual; coal supply from other countries will increase, which could lower the price of coal; and domestic coal production must contend with tighter environmental regulations, which tends to increase the average cost of coal production.

**FIGURE 2.17: Destination of West Virginia Exports by Region**



Sources: International Trade Data Administration; US Department of Commerce  
\* Figure Adjusted for Inflation

**FIGURE 2.18: West Virginia Exports by Nation (2012)**

Exports Destination Country	Export Value (\$ millions of 2000 dollars)	Share of Coal Exports*
Canada	1,211	16.2%
Netherlands	646	84.8%
China	602	55.4%
Japan	525	51.1%
India	502	93.9%
Italy	493	96.0%
Brazil	465	81.1%
South Korea	415	85.1%
United Kingdom	372	83.3%
France	302	85.8%
All Top 10	5,534	64.9%

\* This is computed based on the exports of mineral and ores (NICS 212). While not all WV's exported mineral and ores are coal, 99.7 percent are coal.

Sources: International Trade Data Administration, US Department of Commerce



## INDUSTRY INSIGHT: INTERNATIONAL TRADE, EXPANDING OUR ECONOMIC HORIZONS

By Keith Burdette, Cabinet Secretary, West Virginia Department of Commerce

**T**o make more sales, businesses look for more customers. Many companies are finding them through international trade.

Today, 95 percent of the world's consumers—potential customers for US goods and services—live outside of the United States. That's a major economic incentive for businesses to export.

Businesses gain increased sales and improved cash flow. Exporting abroad also helps support jobs here at home.

The National Export Initiative encourages American companies to start or expand exporting. The program sets a goal of doubling US exports by the end of 2014.

The US Department of Commerce International Trade Administration (ITA) reported that in 2012:

- US exports of goods and services reached an all-time record, totaling \$2.2 trillion.
- Increases were seen in a wide range of categories including capital goods, automotive vehicles, parts, and engines; consumer goods; and travel and tourism.
- Jobs supported by exports increased to 9.8 million, up 1.3 million since 2009.
- Every billion dollars of US exports supported 4,926 jobs.

West Virginia is also seeing gains from exporting. In 2012, businesses in the Mountain State exported to 136 countries. For the third consecutive year, exports

reached a record level. Our state's exports climbed from \$9 billion in 2011 to \$11.3 billion in 2012, a growth rate of 25 percent.

West Virginia's top export product sectors for 2012 reflected both our state's traditional economic strength in coal, as well as our increasing economic diversity. Coal totaled a record \$7.4 billion.

The top destinations for West Virginia coal were Netherlands, Italy, India, China, Brazil, South Korea, United Kingdom, Turkey, Japan and France. The markets with the fastest growth were Japan—soaring from \$29 million in 2011 to \$395 million in 2012—and China, leaping from \$93 million in 2011 to \$567 million in 2012.

West Virginia has worked diligently to diversify its economic sectors. Now that effort is reflected in the state's export goods. Plastics, the state's second-largest product sector, reached the \$1 billion level for the second year in a row. After coal and plastics, the top-performing product sectors were machinery, chemicals, aerospace components, medical devices/products, automotive components, aluminum, wood products, electrical machinery, and rubber products.

Commerce ITA reports that exports from US metropolitan areas hit new highs in 2011, and then topped them in 2012. Of the 370 metro areas reporting, Charleston was among the 170 showing record-high merchandise exports.

Merchandise exports for Charleston totaled \$2.1 billion; Parkersburg-Marietta-Vienna\*, \$1.2 billion; Huntington-Ashland\*, \$439 million; Morgantown, \$76 million; and Wheeling\*, \$75 million.

Many West Virginia companies, large and small, are successfully entering the international market-

place. Although increasing at an impressive rate, there remains potential for more development. Finding new markets through international trade offers the greatest prospect for growth among West Virginia's small and mid-size manufacturers.

Businesses ready to expand their horizons into the global market can get guidance from the West Virginia Development Office (WVDO) Export Promotion Program. In cooperation with the US Commercial Service and the West Virginia Export Council, West Virginia's export promotion program provides services such as:

- Free consultation to determine a company's export readiness
- Free assistance in identifying foreign markets for an exporter's product or service
- Inexpensive trade missions to dynamic markets
- Subsidized costs for exhibiting in international trade shows
- Logistics support for companies participating in international trade shows and trade missions

WVDO International works with US Commercial Service to provide Gold Key Matchmaking Services. Gold Key Service supports businesses with customized market and industry briefings with federal trade specialists, market research, appointments with prospective trade partners in key industry sectors, post-meeting debriefing with trade specialists and assistance in developing appropriate follow-up strategies, and help with travel, accommodations, interpreter service, and clerical support.

Each year, the state awards the Governor's Commendation for International Market Entry to West Virginia businesses. The award

honors companies that have successfully exported to a new country in the previous year. In 2012, Gov. Earl Ray Tomblin presented the commendation to 52 businesses, a new record for the state.

These companies demonstrate the wide spectrum of goods and services that West Virginia now markets to the world.

Family-owned Petitto Mine Equipment made its first sale to China. Laying the groundwork for that sale included participating in the state's booths at the China (Taiyuan) Coal & Energy New Industry Expo in 2008 and the China Coal and Mining Expo in 2009 and 2011. WVDO and West Virginia University facilitated key introductions to Chinese mining executives. The company continued to develop the relationship that culminated in the successful sale of a diesel powered Petitto Mule™ for use in underground mines in China.

RockyBrook Sinkers produces a patented limestone sinker. They began by selling their product regionally. RockyBrook received the Governor's Commendation for its entry into markets in Canada, Japan, and Russia.

Touchstone Research Laboratory got its start in 1980, equipped with a rebuilt microscope. Today, the company develops its own technologies, including carbon foam and high temperature composites. Touchstone was honored for entering into commerce with Portugal, Israel, and Italy.

Many West Virginia businesses are stepping up to do their part to reach international markets. But more need to take advantage of international opportunities.

Competing for our place in the global market is vital to keeping the economies of our businesses, our state, and our nation growing strong.

## CHAPTER 3:

# WEST VIRGINIA'S ECONOMY, INDUSTRY FOCUS

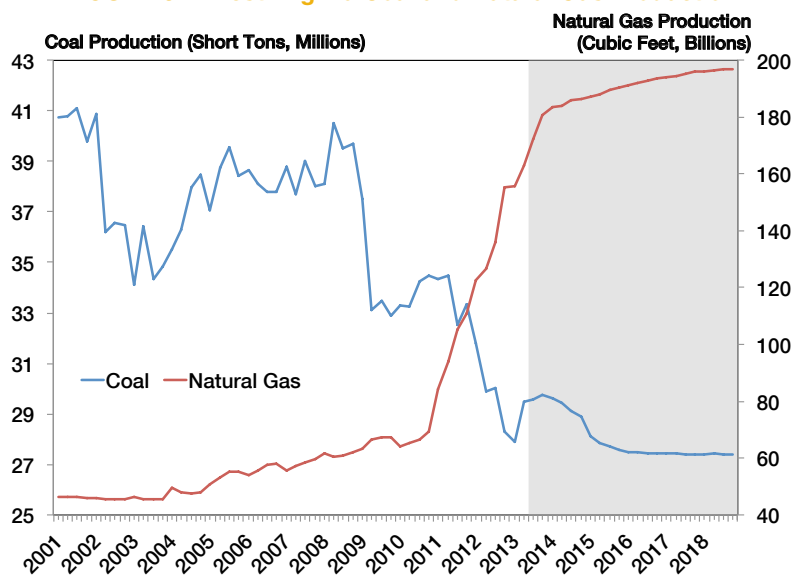
## ENERGY

West Virginia's natural resources and mining sector faced substantial job losses and production declines in 2012 but has bounced back considerably in the first half of 2013.<sup>13</sup> Total employment in the sector was up almost 3,600 jobs in the first two quarters of 2013, a gain of about 11 percent (see Figure 3.1).

The gains in the sector, which is made up of the coal mining, oil and gas extraction, and other natural resource industries, were not equally distributed. Preliminary data for the second quarter of 2013 suggest that, while coal mining employment has stabilized after a drop in 2012, jobs have not returned to 2011 levels (see Figure 3.1). Available data indicate that most of the employment gains in the state's mining sector so far in 2013 have come in the state's burgeoning oil and gas industry.

Total natural resources and mining employment is forecast to rise slowly between 2013 and 2018, at a rate of 0.3 percent on an average annual basis. If utilities are included, growth is slower, at an average annual rate of 0.1 percent. Below we provide more detailed information on the individual components of the state's energy sector.

**FIGURE 3.1: West Virginia Coal and Natural Gas Production**



Sources: US Energy Information Administration; WVU BBER Macroeconomic Model

13. Sources for historical information are noted in each figure throughout this document.



## Coal

After large employment declines and production losses in 2012, the coal industry appears ready for a modest recovery in 2013 with flat employment numbers forecast over the following four years. Coal demand fell substantially in 2012 after a warm winter sent coal stockpiles at utilities higher and low natural gas prices caused power generators to switch to the lower-cost fuel. Coal production was down more than 10 percent in 2012 from the year before, and mining companies responded in the latter half of the year with a series of layoffs. The coal mining industry shed nearly 3,000 jobs between the end of 2011 and 2012, a drop of more than 12 percent. Several mining companies idled mines entirely, especially in the state's southern coal regions.

One of the bright spots in coal in recent years has been in the export markets. The value of coal exports from West Virginia rose nearly 40 percent between 2011 and 2012, and has more than tripled since 2009. The US Energy Information Administration (EIA) predicts that coal exports nationally will fall somewhat over the next two years. However, exports are expected to remain an important source of revenue for the state's coal industry over time.

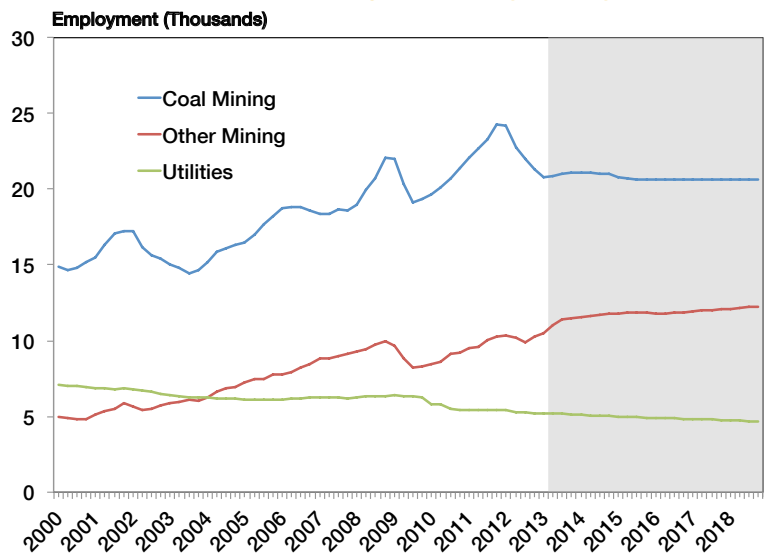
West Virginia's coal industry is beginning to show signs of improvement, both in production and employment. Total year-to-date production as of May 2013 was still down about 8.5 percent from last year, but production in April and May were higher year-over-year than in 2012. Preliminary employment numbers from the US Mine Safety and Health Administration show coal mining employment stopped its slide in the first quarter of 2013, remaining about the same as it was at the end of 2012.

West Virginia coal production is forecast to rise through early 2014 and then fall back through the rest of the forecast period. Overall production is forecast to fall by an average annual rate of 1.2 percent in the next five years. Employment is forecast to fall more slowly, decreasing by about 300 jobs, for an average annual drop of 0.3 percent.

Coal continues to face serious long-term obstacles, both in supply and end-user demand, particularly in the power-generation sector. Productivity at the nation's coal mines has been falling for more than a decade (see Figure 3.3) and this trend is expected to continue as more easily-mined reserves are exhausted.

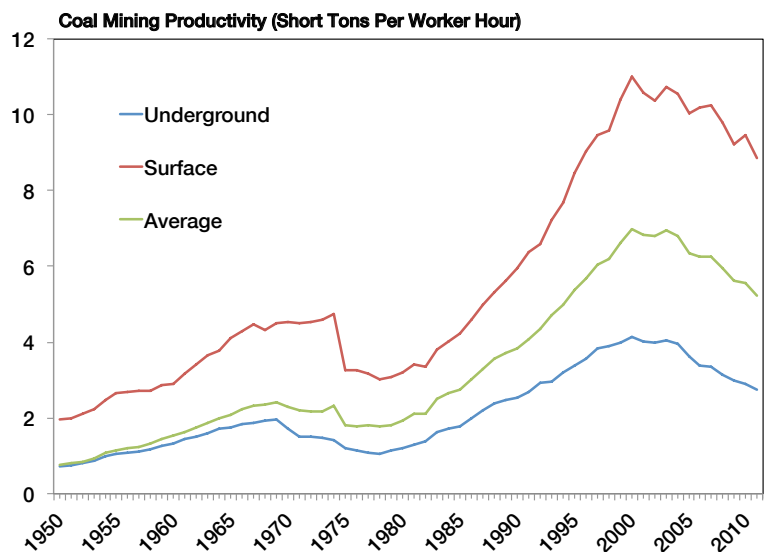
On the demand side, natural gas prices fell to near-record lows in 2012, which caused a temporary shift away from coal as fuel for power generation. As natural gas prices have risen again, coal generation has recovered, but the long-term outlook for coal-fired generation remains uncertain given recent trends in

**FIGURE 3.2: West Virginia Industry Employment**



Sources: Workforce WV; US Bureau of Labor Statistics; WVU BBER Macroeconomic Model

**FIGURE 3.3: United States Coal Mining Productivity**



Source: US Energy Information Administration

natural gas production and proposed changes in the regulatory environment for coal-fired power plants (see subsequent sections for more detail). The state's coal producers also face increased competition from mines in the Illinois Basin. At the same time West Virginia's production was falling, production in Illinois grew 27 percent in 2012, the fastest rate of growth in the country.

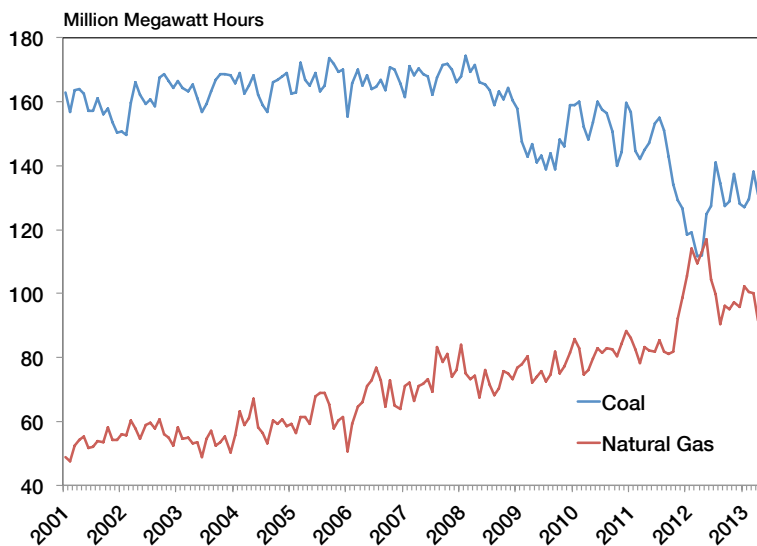
## Natural gas

Natural gas production has been on a remarkable rise in West Virginia since the introduction of hydraulic fracturing techniques opened up huge shale gas reserves that underlie the state. Production began its

rapid ascent in 2010, and has made huge gains each year since then. In 2012, production rose to 539 billion cubic feet, a gain of almost 40 percent from the year before. In the past, production has been spread across most of the state and has come from all three shale plays that lie within the state's borders: Marcellus, Utica, and Devonian. Recently, however, the majority of new production permits have been in the northwest part of the state, in the Utica shale regions, where drillers can produce both dry and wet gas.

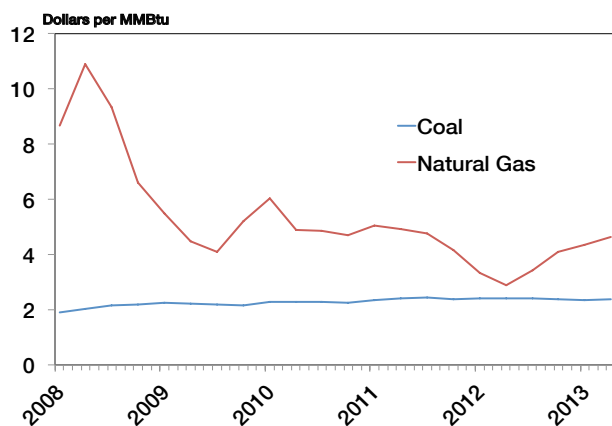
The massive investment in shale gas has brought with it a boom in oil and gas employment in the state. Employment in oil and gas mining, and support services for the industry, grew by more than 3,200 jobs between 2002 and 2012, a rise of 7.3 percent on an average annual basis. Employment in this sector bolstered an otherwise soft mining sector in the state.

**FIGURE 3.4: United States Electric Power Generation by Fuel Type**



Source: US Energy Information Administration

**FIGURE 3.5: United States Average Cost of Fossil Fuels for Electricity Generation**



Source: US Energy Information Administration and Author Calculations  
\*Through May 2013

Natural gas production is expected to continue its rapid rise in 2013, and then taper off through 2018. EIA gas production data for Pennsylvania and West Virginia combined show production gains of approximately 50 percent in the first half of 2013 over the same time last year. With these gains factored in, gas production is forecast to grow 17 percent from 2013 to 2018 on an average annual basis. Employment in the other mining sector, of which natural gas is a part, is forecast to rise by about 1,100 jobs between 2013 and 2018, an average annual gain of 1.9 percent.

Exports may become a significant new market for gas produced in West Virginia. Until recently, the United States was a net gas importer, but the rapid expansion of shale gas changed the calculus. More than 15 companies have applied to produce liquefied natural gas (LNG) for export, primarily to Europe and Asia, according to the US Department of Energy. So far West Virginia is not a major player in the natural gas export market, but this may change as these new terminals come online. The export of natural gas has become a political issue, however, as politicians weigh in on whether selling natural gas abroad will raise prices in the United States.

#### Utilities

The West Virginia utility sector has been on a downward trend in recent years in response to a number of market factors that have made coal-fired power plants less competitive in comparison to plants powered by other fuels. Nationally, coal has been losing market share to natural gas over the last decade (see Figure 3.4), and because coal-based generation makes up more than 95 percent of power production in the state, West Virginia's utilities sector has been hit particularly hard. In 2012, utilities retired about 1,100 megawatts of the state's coal-fired generating capacity, and another 1,300 is proposed to be retired by 2014, according to data from the US EIA. Employment in the utility sector has fallen by 2.3 percent on an average annual basis since 2002. Total employment in the sector was approximately 5,300 jobs in 2012.

The downward trend in the utilities sector is the result of a combination of factors in recent years. Since 2005, prices for natural gas have been falling relative to coal, causing a shift in the fuel mix in power generation that favors natural gas (Figure 3.5). In April 2012, the percentage of electricity generation nationally from natural gas nearly equaled that from coal, a first in the nation's history (see Figure 3.4). Coal regained its lead in the following months as gas prices rose, but it was a reminder that generators have the ability to quickly respond to price changes in the market.

West Virginia's utilities continue to face long-term adverse conditions. Low gas prices, combined with significantly lower capital costs, have made natural gas generation cost-competitive with coal. Levelized costs for advanced natural gas combined cycle plants are now \$65.6 per MWh, about 35 percent lower than the cost for new coal-fired generation. These investment costs indicate that natural gas plants will likely constitute the majority of capacity additions in the near future. Of the capacity additions proposed for the next 10 years, more than half are from natural gas generation, compared with less than 1 percent from coal.

The US EIA forecasts that coal will continue to be the largest source of electricity generation for the foreseeable future, however, its market share will decline. Coal's share of electricity generation is expected to fall from 42 percent in 2011 to 38 percent in 2025. Natural gas' share is forecast to rise to 27 percent of generation by 2025 from the current 24 percent.

Secondly, recent government regulations have encouraged older plants to be shut down and have made it difficult for new coal plants to be built in the near future. The US Environmental Protection Agency's (EPA) Mercury and Air Toxics Standards (MATS) went into effect in February 2012, setting limits on the amount of mercury and other heavy metals that can be released by existing and future power plants. The EPA estimated that 4.7 gigawatts of coal capacity (about 2 percent of the total) would become uneconomic to maintain as a result of the rules changes. Power plants have until 2015 to comply with the new rules.

The EPA also has proposed the Carbon Pollution Standard rules that would set limits on the amount of carbon dioxide that can be emitted from new power plants. The rules would require that new fossil-fuel-fired power plants would have to emit less than 1,000 pounds of CO<sub>2</sub> per megawatt-hour. This standard would be difficult for coal plants to meet without adopting carbon capture and sequestration (CCS) technologies.

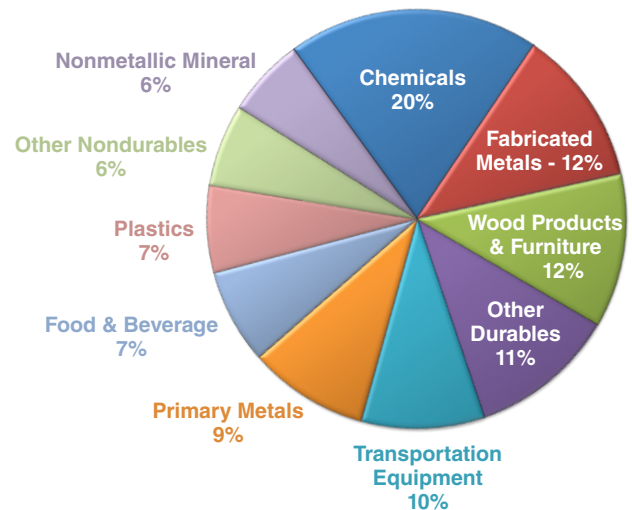
Because of these trends, employment in the utilities sector is forecast to fall by more than 400 jobs between 2013 and 2018, a loss of 1.9 percent on an average annual basis.

Overall, West Virginia's energy sector will continue to face considerable uncertainty in the near term. Coal mining is expected to remain a critical part of the state's employment and resource base into the foreseeable future, but is likely to face continued up and down cycles. Meanwhile the state's natural gas industry is expected to provide strong growth over the next five years, cementing its place as a major player in the West Virginia's energy mix.

## WEST VIRGINIA'S MANUFACTURING SECTOR

West Virginia might not be a manufacturing heavyweight from a national perspective, owing to the sector's below-average share of state employment and economic output, but there are pockets of manufacturing activity that affect statewide economic growth in important ways. For example, the chemicals industry, which is clustered along the Kanawha Valley, contains roughly 20 percent of the state's overall manufacturing base in 2012. In addition, the chemicals industry accounted for 3.6 percent of the value of total state output—ranking fourth among all states at more than twice the national share. The chemicals industry, which includes commodities such as resins, also plays a critical role in the state's export trade, ranking as the state's second largest product export at a value of \$797 million during the first half of 2013.

FIGURE 3.6: Share of Total Manufacturing Employment (2012)



Source: Workforce WV

Other relatively large components of the state's manufacturing sector include: fabricated metals; wood products; transportation equipment, which includes both auto parts and aerospace; as well as primary metals, namely iron and steel. Combined, these industries accounted for 63 percent of all manufacturing sector jobs found in the state during 2012.

While the national economic downturn hurt the state's major manufacturing industries, the rate of job and output losses occurred at different paces and over various durations across sectors. For example, the US housing market bubble's collapse started to weigh on state wood products manufacturers as early as 2005, causing sawmills, furniture, flooring, and other producers to cut payrolls by 41 percent as industry output plunged by a similar magnitude compared to the peak in late 2005/early 2006.

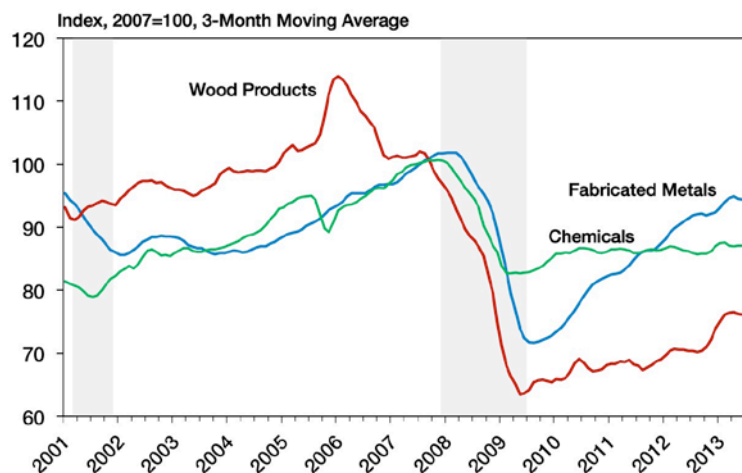
Chemicals manufacturers endured a more brief and shallower recession overall, as aggregate industry output declined less than 18 percent between late 2007 and mid-2009. Unfortunately, payroll levels in the state's chemicals industry have been falling steadily for more than two decades due to a combination of increased technological innovation and greater competition from lower-cost producers overseas.

The recovery has also proceeded differently for the state's major manufacturing industries. Overall manufacturing employment has remained relatively stable since the beginning of the economic recovery, but the value of output generated by West Virginia manufacturers has risen at a rate of 2.5 percent per

year since 2010. Moreover, the average number of hours worked in a week, though still below pre-recession levels, has trended higher since the beginning of 2012.

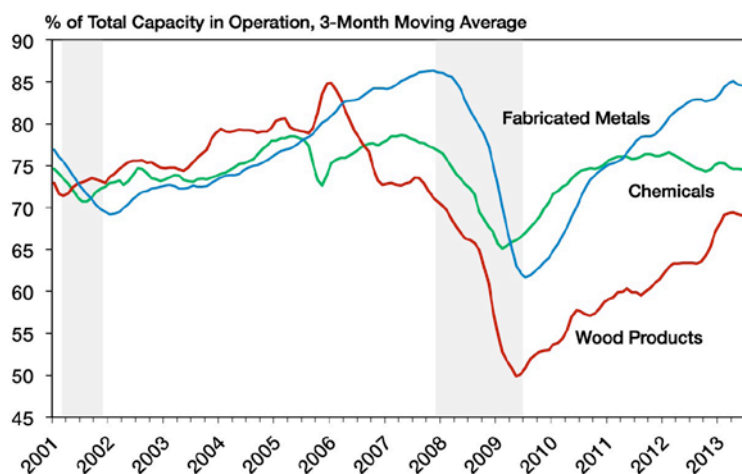
Since the fabricated metals industry tends to follow the broader cycle in national manufacturing activity, this segment of the state's manufacturing sector has enjoyed a relatively solid rebound to date. Real output from West Virginia's fabricated metals industry has increased at a double-digit pace in each of the past two years, and nationally these producers are operating at an average of 85 percent of productive capacity as data from the US Census Bureau show new orders for fabricated metal equipment have jumped 40 percent since the end of the recession in 2009.

**FIGURE 3.7: US Industrial Production for Selected Manufacturing Industries**



Source: Federal Reserve Board of Governors  
Note: Shaded regions indicate recessions

**FIGURE 3.8: US Factory Operating Rate for Selected Manufacturing Industries**



Source: Federal Reserve Board of Governors  
Note: Shaded regions indicate recessions

Though not quite as strong, the state's wood products industry has enjoyed a solid rebound in production activity thanks to the national housing market's recovery. Industry-wide shipments of wood products have increased at a double-digit year-over-year rate during the past five months and, as a result, are operating at a higher percentage of capacity.

#### Sector Outlook

Going forward, our forecast calls for the state's manufacturing sector as a whole to post marginal increases in employment of 0.2 percent per year through the end of 2018. We anticipate the wood products industry will experience the fastest growth during the outlook period as the continued recovery in the state and national housing market boosts the needs for framing lumber, flooring, and other related products.

The state's plastics industry is expected to grow at a steady pace over the next five years, with employment levels projected to bounce back at a rate of roughly 2 percent per year. Rising auto production and anticipated longer-term capacity upgrades across the aerospace industry bode well for West Virginia's transportation equipment manufacturing industry and should yield nearly a 2 percent average annual gain in employment.

Some segments of the manufacturing sector will continue to shed workers over the forecast horizon. We expect most of these losses will occur within various nondurable goods production industries that have had a shrinking footprint within the state for a long period of time. However, appreciable declines in employment levels are also projected for West Virginia's iron and steel industry over the forecast horizon, largely as a consequence of what will likely be continued pressure from internationally-produced steel and the lingering issues of high pension legacy costs.

West Virginia chemicals manufacturers are expected to see employment decline at a slower pace over the

2013 to 2018 forecast window than what the industry endured during the previous 10 years. The state's chemicals industry does have sources of upside potential going forward. For example, since natural gas serves as a feedstock during the production process for many chemicals and is commonly used in cogeneration plants, the availability of large volumes of natural gas flowing from the Marcellus and Utica shale formations should help to keep production costs under control for the state's chemicals manufacturers.

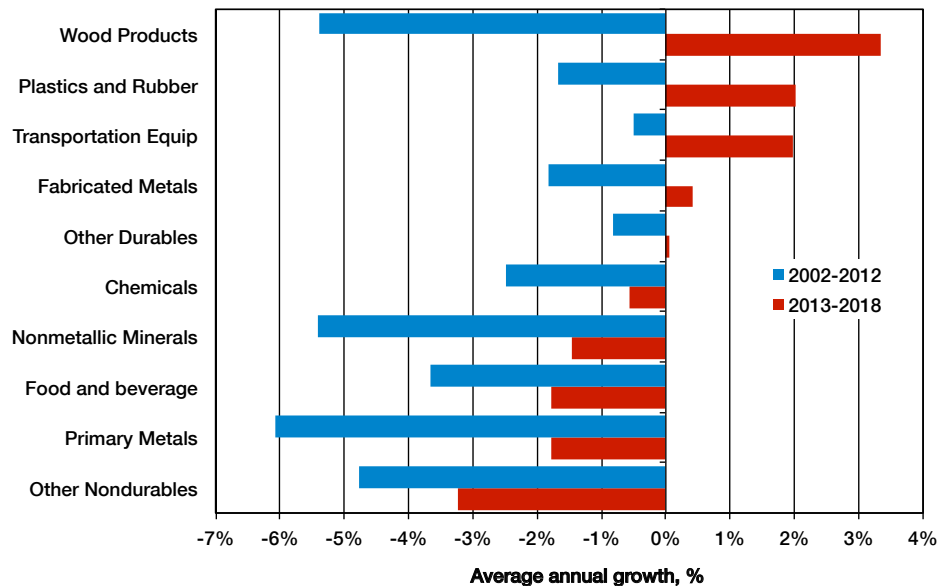
In addition to natural gas, by-products (such as ethane) found during the drilling process could encourage expansion within the state's chemicals industry. An example includes the proposed construction of catalytic cracking facilities, which could use the ethane by-product from shale formations and then convert it into ethylene—an input that is widely used to manufacture resins, plastics, and other materials produced in West Virginia.

### CONSTRUCTION IN WEST VIRGINIA

West Virginia's construction sector remains on the road to recovery. While job gains have not been consistent over the course of 2013, employment in the sector has increased at a strong pace over the past two years, and workers in the sector have seen their average workweeks increase in length. A nascent recovery in single-family home construction throughout the state, particularly in higher-growth areas such as the Eastern Panhandle and Putnam County, has certainly been welcome news for the sector. However, the largest spark to the sector in recent years has been a surge in construction associated with the boom in natural gas production activity.

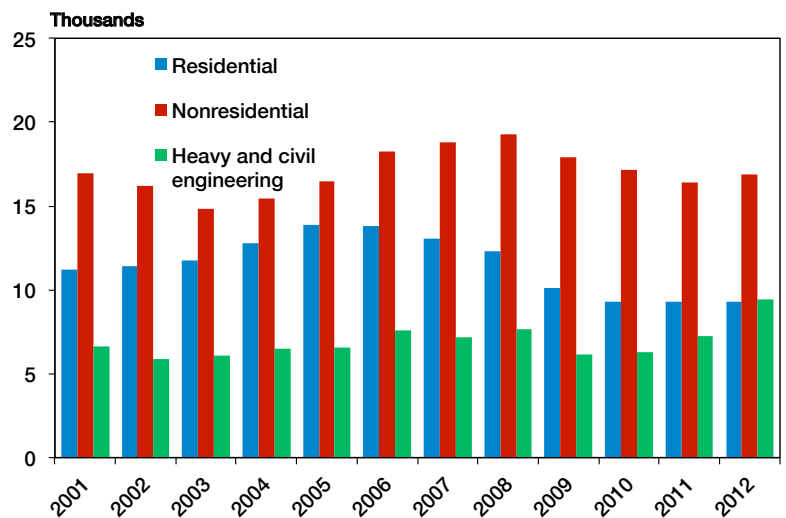
The broad heavy and civil engineering construction industry posted a nearly 51 percent increase in employment between 2010 and 2012. While this industry is generally linked to highway construction and other forms of traditional infrastructure building and repair jobs, it also includes workers tasked with construction at oil and gas sites and new pipeline development. Employment in this segment of the industry has more than tripled during the last two calendar years and has accounted for a wide majority of the new construction jobs added on net since 2010. By comparison, residential construction employment—including contractors—

**FIGURE 3.9: West Virginia Manufacturing Industry Employment Growth Forecast**



Sources: Workforce WV, WVU BBER Macroeconomic Model

**FIGURE 3.10: West Virginia Construction Employment by Type**



Source: Workforce WV

has increased modestly during the past two years, while nonresidential construction employment saw its first calendar year increase since 2008.

#### Residential Construction

Just over 2,000 new single-family homes were started at some point during the year from mid-2012 to mid-2013.<sup>14</sup> Although this represents a pace of construction more than two-thirds lower compared to the height of the state's building activity in early 2006, it still marks a 19 percent increase from a year ago. In addition, the recent gains in new construction activity put this new

<sup>14</sup>. According to data from McGraw-Hill Construction

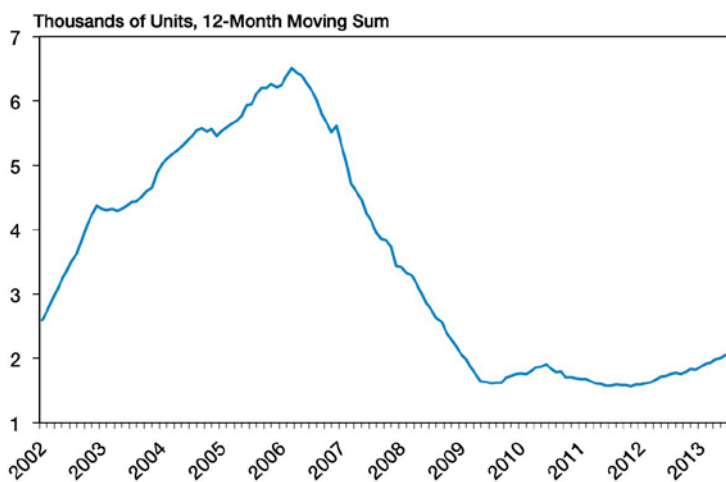
supply at approximately half of the level needed in a given year after one takes into account the current stock of housing, population growth, replacement, and the general preference for new homes by some buyers.

Owing to the state's low population density and high homeownership rate, West Virginia tends not to be very active in terms of multi-family construction activity. The peak in apartment construction occurred during 2006 and 2007 when more than 2,000 units were started, with a substantial share of those newly-built units added in Berkeley County. As of mid-2013, fewer than 300 multi-family units had been started within the state's 55 counties over the preceding 12 months.

### Nonbuilding and Nonresidential Construction

While the state's single-family construction sector has shown signs of improvement over the past 12 months, the nonbuilding segment has struggled significantly. Nonbuilding typically consists of infrastructure projects such as highways, bridges and water/sewer systems, as well as utility distribution systems. These line items are linked to federal, state, and local spending decisions made with a considerable lag before construction takes place. Given the long lag and the recent protracted debates over the trajectory of spending occurring at all levels of government, funding decisions for projects have likely been delayed and affected nonbuilding construction activity.

**FIGURE 3.11: West Virginia Single-Family Housing Starts**

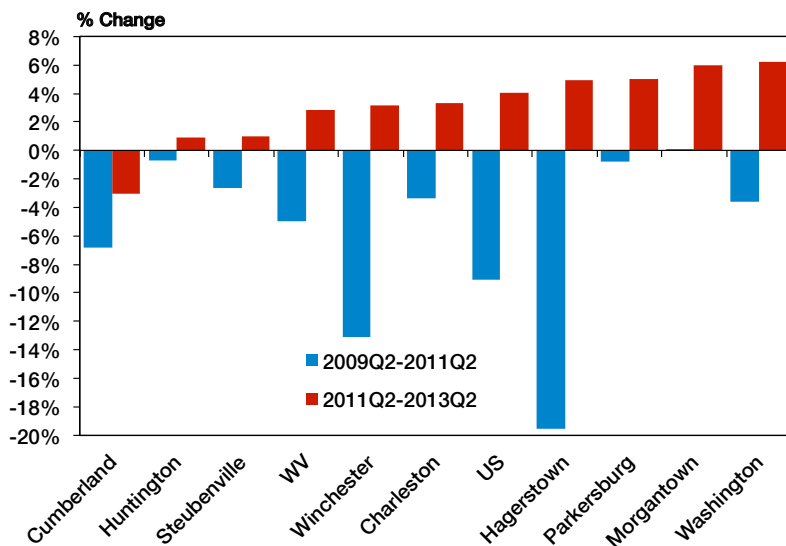


Source: McGraw-Hill Construction

During the first half of 2013, new nonbuilding projects started in West Virginia totaled \$270 million, marking a 46 percent plunge in dollar value compared to the same time frame in 2012. Among the major nonbuilding types, data from McGraw-Hill indicated only waterway infrastructure projects experienced an increase in year-to-date spending activity compared to 2012.

For the nonresidential construction sector, the value of new projects started during the first half of 2013 totaled \$221 million, slipping nearly 8 percent compared to the same six-month period in 2012. In addition, the level of new nonresidential construction spending within the state was at its lowest level for the first half of a year since 2003. Offices and bank buildings, retail space, and schools, libraries and other types of government buildings represent some of the building types included within the nonresidential sector. Of the nonresidential property types reported by McGraw-Hill, only new office space and education-related buildings such as schools and libraries posted a gain in new construction through the first six months of 2013.

**FIGURE 3.12: Single-Family House Price Growth by Metro Area**



Source: Federal Housing Finance Agency – All Transactions House Price Index

### House Prices

West Virginia participated in the housing market bubble on a smaller scale compared to the rest of the nation, as prices increased at a below-average pace during the peak years of the national housing market boom. After the bubble burst across much of the nation, house prices in the state deflated by 6.5 percent from peak levels, compared to an 18 percent decline for the US.<sup>15</sup> In the past two years, prices for existing homes in West Virginia have increased nearly 3 percent, and more than 4 percent nationally.

15. The measure for house prices used in this section is the Federal Housing Finance Agency's All-Transactions Index, which is available at the state level and for all metropolitan statistical areas. In articles concerning housing prices, readers often find references to a 35 percent decline between the peak of the housing market and the trough. The source for this statistic, the Case-Shiller House Price Index, is not available at the state level and is only provided for a sub-set of metro areas. For additional information between the two indexes, readers can visit <http://www.fhfa.gov/Default.aspx?Page=196>.

While the state as a whole saw only a modest run-up in prices and limited fall-out from the housing market downturn, the effects have been felt differently across the state's counties located within metropolitan areas. Prices increased at the fastest pace in the Eastern Panhandle region, with the Hagerstown (Berkeley and Morgan counties), Winchester (Hampshire County) and Washington, DC (which includes Jefferson County) metro areas recording house price growth of 70 to 75 percent between 2003 and 2006. Although price gains were the fastest in these areas, the correction in prices experienced was also the largest. According to the Federal Housing Finance Agency (FHFA) House Price Index, existing house prices fell by 25 to 35 percent in these three areas. Among the West Virginia's other counties that fall within metro areas, house price changes during the boom-bust period were more subdued. In fact, areas such as Morgantown, Charleston, and Huntington did not experience any measurable correction in existing house prices.

The recovery in house prices has progressed differently for these areas as well over the past two years. For example, the Cumberland (which includes Mineral County) metro area has not yet seen prices completely bottom out. Prices have started to recover in the Hagerstown MSA, but the share of loans in foreclosure on the Maryland side remains very high and this proximity to a large supply of distressed housing has prevented stronger recovery in house prices from occurring in locales such as Martinsburg. By contrast, Jefferson County has benefited from an increasingly healthy and rebounding nearby DC-area housing market, where prices of existing homes have increased more than 6 percent over the past two years.

### Sector Outlook

Our forecast calls for the construction sector to record strong growth in employment of 2.3 percent per year throughout the outlook period, though not all segments are expected to participate in the expansion to the same degree. The state's energy industry is expected to remain a solid contributor to the construction sector going forward, but this impact will be smaller compared to the robust gains in the past two years. TransGas Development Systems' coal liquefaction plant project, targeted for construction in Mingo County, could reportedly generate as many as 3,000 construction jobs to build the nearly \$4 billion facility.<sup>16</sup>

New pipelines and distribution systems will need to be constructed in order to transport the large amounts of natural gas extracted from the Marcellus, Utica, and

Devonian shale formations in West Virginia and the surrounding region to utilities and other end users. Large quantities of ethane and other by-products found while extracting natural gas reserves have also yielded proposals for constructing facilities in West Virginia to process these products for industrial applications.

A continuing recovery in the state's housing market is also expected to bode well for the construction sector. New single-family home construction is expected to accelerate modestly over the near term in the state's traditional higher-growth locales due to the combined effects of stronger underlying economic growth, relatively low interest rates, and waning competition from distressed sales. Healthy rates of in-migration and rising per capita incomes will support demand for new single-family housing construction in areas such as the Eastern Panhandle over the long-term.

Publicly-funded infrastructure spending in West Virginia, as well as other states, will remain under pressure during the forecast horizon. Increased fuel efficiency of US vehicles combined with virtually no increases in miles driven over the past six years has led to sluggish growth in fuel taxes and shortfalls in the federal highway trust fund. In addition to the problems created by weak state revenue growth, broader federal tax reform and other plans connected to reducing the federal debt could have a significant effect on funding for future highway construction and other infrastructure development in the state.

### HEALTHCARE IN WEST VIRGINIA

West Virginia is often described as the second most-rural state in the nation. More than 60 percent of the population lives in counties that the Census Bureau defines as rural. Rugged terrain and long travel times have limited many West Virginians' access to healthcare services. But more recently, construction of new roads and the expansion of health care services have made access easier. The following section details the status of health and healthcare in West Virginia, provides an industry insight about the implications of the Affordable Care Act (ACA) for the hospital industry, and discusses the future of the health care industry in West Virginia.

#### Health and Healthcare in West Virginia

Figure 3.13 on the following page shows that employment in West Virginia's healthcare sector has grown at variable annualized growth rates since hitting a low in 2006. In 2006, the average annualized growth rate was only 0.3 percent, representing the lowest growth rate since 2002. The figure grew to a high of 2.7 percent in 2008, but has diminished since then. In 2013, the annual growth rate in employment is forecast to be only 0.6 percent, down substantially from the 2012 growth rate of 2.3 percent. The general trend in

16. WV Dept of Commerce News Release: [http://www.wvcommerce.org/news/story/TRANSGAS\\_PLANS\\_MAY\\_9\\_GROUNDBREAKING\\_FOR\\_MINGO\\_COUNTY\\_COAL-TO-GAS\\_PLANT/1725/default.aspx](http://www.wvcommerce.org/news/story/TRANSGAS_PLANS_MAY_9_GROUNDBREAKING_FOR_MINGO_COUNTY_COAL-TO-GAS_PLANT/1725/default.aspx) - accessed August 3, 2013

growth since 2006 may be attributed to a number of factors including the poor overall health status of West Virginians; challenges in accessing health care, particularly in rural areas; and an older than average population. The smaller rate of growth that is forecast for 2013 appears to be a one-time aberration as growth in healthcare sector employment is forecasted to increase over the next 5 years. This likely aberration may be due to the uncertainty surrounding implementation of the Affordable Care Act.

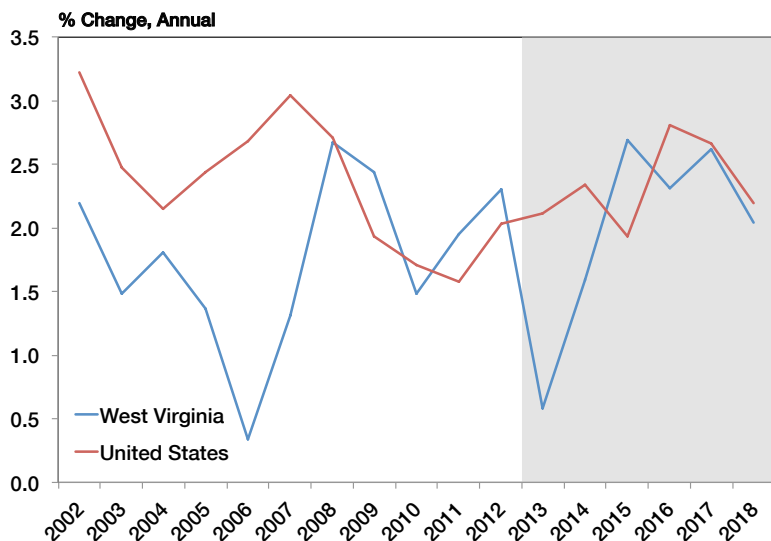
According to America’s Health Rankings,<sup>17</sup> West Virginia ranked poorly in 2012 across a number of health measures, including overall health, obesity and physical inactivity. Perhaps most concerning is a

decline in its rank in overall health from 41st in 2011 to 47th in 2012. A major contributor to West Virginia’s poor overall health is obesity.<sup>18</sup> Obesity is a major risk factor for many diseases and chronic conditions including heart disease, cancer, Type 2 diabetes and stroke. In 1990, West Virginia and Mississippi had the highest rate of obesity in the nation with 15 percent of the adult population classified as obese. The prevalence of obesity in West Virginia has increased dramatically since 1990. In 2012, the percent of obese adults reached 32.4 percent. West Virginia ranked 48th in obesity with only Louisiana and Mississippi having higher rates of obesity.

A key factor to reducing and preventing obesity and other related chronic conditions is getting regular exercise (physical activity). Unfortunately, West Virginia ranks low in this important lifestyle behavior. Again, according to America’s Health Rankings, in 2012 West Virginia was tied with Tennessee for 48th with 35.1 percent of the population reporting being physically inactive.<sup>19</sup> This percentage is up from 32.9 percent in 2011. On the bright side, physical inactivity has declined dramatically since 1997 when 42.7 percent of West Virginians reported that they had not engaged in leisure time physical activity during the past 30 days.

Other health issues affecting the state include high rates of diabetes and smoking.<sup>20</sup> The percentage of the adult population who has been told by a health professional that they have diabetes increased from 4.7 percent in 1996 to 12 percent in 2012. In 2012, West Virginia ranked 49th in terms of smoking with 28.6 percent of the adult population indicating that they currently smoke daily. This percentage has remained fairly stable over the past 10 years.

**FIGURE 3.13: West Virginia Healthcare Sector Employment Growth**



Sources: Workforce WV; US Bureau of Labor Statistics; WVU BBER Macroeconomic Model

**FIGURE 3.14: West Virginia Healthcare Sector Employment and Wages (2012)**

Sector	Total Employment	Total Wages	Average Annual Wage
Ambulatory Healthcare Services	39,121	\$1,716,899,269	\$43,882.80
Hospitals	39,498	\$1,929,087,925	\$48,839.96
Nursing & Residential Care Facilities	18,508	\$486,067,601	\$26,263.12
Social Assistance	17,303	\$285,527,848	\$16,502.20
<b>Total</b>	<b>114,429</b>	<b>\$4,417,582,643</b>	<b>\$38,604.80</b>

Source: Workforce WV

Figure 3.14 provides a breakdown of the types of employment captured under the umbrella of the Healthcare and Social Assistance sector. Hospital and ambulatory healthcare services employees account for 69 percent of workers in the sector. The average annual wage of workers in this sector was \$38,604. Employment in education and health services accounted for 16 percent of total employment in the state in 2012. Average hourly earnings in this sector

17. www.americashealthrankings.org/WV/2012; accessed August 6, 2013.

18. Obesity is defined by the Center for Disease Control (CDC) as having a body mass index (BMI) of 30 or higher. BMI, as defined by the CDC, is equal to weight in pounds divided by height in inches squared multiplied by 703.

19. Physical inactivity is the percentage of population over the age of 18 who report doing no leisure time physical activity or exercise in the last 30 days.

20. According to the Behavioral Risk Factor Surveillance System administered annually by the CDC. www.americashealthrankings.org/WV/Diabetes/2012. (Accessed August 6, 2013.)



are \$20.20, slightly above the state average of \$19.55. The education and healthcare sector made up 9.9 percent of total state GSP in 2012.

#### Healthcare Sector Forecast for West Virginia

The West Virginia Healthcare sector provided over 114 thousand jobs in 2012 while paying roughly \$4.42 billion in employee wages. As shown previously in Figure 3.13, the healthcare sector is forecast to grow steadily, adding jobs at a rate of 2.3 percent per year between 2013 and 2018.

Perhaps the most important factor affecting the future of the healthcare sector is the implementation of the Affordable Care Act. The ACA initially required states to expand Medicaid coverage or lose all federal funding for Medicaid, even for currently funded programs. The Supreme Court declared this enforcement mechanism unconstitutional, leaving states with a choice about whether to expand Medicaid. West Virginia announced plans to expand Medicaid in January 2013. A study by CCRC Actuaries regarding the impact of the Medicaid expansion reported that Medicaid expansion will provide insurance coverage to approximately 91,500 West Virginians. Combined with other ACA mandates, the number of uninsured West Virginians is expected to drop from 246 thousand to 76 thousand by 2016.<sup>21</sup> The overall impact of this increase in insured individuals on the healthcare sector is unclear. Insured individuals use more health care services than uninsured individuals.

In the near-term, it is quite likely that a pent-up demand for healthcare will be realized. Uninsured individuals also tend to be less healthy than insured individuals suggesting that realization of this pent-up demand will result in higher healthcare costs associated with providing care to a potentially sicker population. This expansion in demand will likely create a need for more healthcare professionals in the near-term. On the other hand, the ACA also places an emphasis on preventive care; encouraging healthy lifestyles; and active patient involvement in chronic disease management. This emphasis should reduce the demand for the most expensive inpatient hospital services resulting in a reduction in overall healthcare sector costs. The net effect on the healthcare sector remains to be seen as the provisions of the ACA are implemented in the coming years.

## INDUSTRY INSIGHT: HOSPITALS MUST CHANGE TO SURVIVE



**J. Thomas Jones, President  
& CEO West Virginia United  
Healthcare System**



**Christopher C. Colenda, MD,  
MPH, Chancellor for Health  
Services, West Virginia University,  
and CEO designate, West Virginia  
United Health System**

Last year at this time, the future of the Affordable Care Act (ACA) was in question as the country faced a watershed election. This year, despite continuing debate in Congress and elsewhere, implementation of the ACA is moving ahead. Starting in January 2014, millions of uninsured Americans, including tens of thousands of West Virginians, will be newly eligible for health insurance.

West Virginia's hospitals must adapt to a new financial environment. As the components of the ACA come online over the next few years, and as other insurers adopt similar payment methods in the ACA, the fee-for-service model that has provided our hospitals with steady increases in patient numbers and revenue – and relative stability – will continue to shrink. More and more, our revenue will be based on our success in keeping people healthy.

To fully participate in the new model, hospitals, physicians, other health providers and insurers need to increasingly align their efforts to form “accountable care organizations” (ACOs) that assume risk for the full cost of healthcare for a group of people. If the care can be provided at a reasonable cost, the ACO can survive financially. If the cost of care, counting everything from well-baby visits to heart surgery, exceeds expectations, the organization will be on the hook for the difference.

Changing incentives will change behavior. Hospitals that used to spend marketing dollars trying to capture well-insured patients for high-end services will now have a strong incentive instead to put those dollars to work nudging patients in their ACO to show up for annual checkups, get health screenings, and sign up for wellness activities

21. Expanding Medicaid: West Virginia's Best Choice in A Dynamic Healthcare Landscape

that will keep them healthy and out of a hospital bed.

### **A West Virginia ACO**

West Virginia United Health System (WVUHS) took a bold step to prepare for this shift in 2012. More than 10,000 employees and dependents at WVU Hospitals and University Health Associates saw their employer-provided health insurance move from a traditional plan to an ACO organized in partnership with the Pennsylvania-based Geisinger Health Plan. Geisinger is a national leader in developing an integrated approach to providing care for large numbers of people. They are pioneers in using data-driven strategies to identify individuals within the group who will benefit the most from active health interventions.

Of our 10,000 people, Geisinger identified fewer than 200 who were at highest risk for serious health issues. This group – 2% of the total – accounted for about 27% of health expenses in the entire population. Each was assigned a case manager to assist in coordinating all the healthcare services the individual required.

Another 2,300 people in the group are coping with one or more chronic illnesses. They were provided specific assistance targeted at keeping those conditions under control. The remaining 75 percent of the employees and dependents are at low risk and do not use hospital services nearly as much as the other groups. They have access to a set of wellness services but do not get special care management.

The results in the first year were striking. Hospital admissions for medical and surgical care declined by about 16% over the previous year. Emergency department visits were down by 8%. Many members of the group reported positive changes in their health including reduced weight, lower cholesterol levels, or healthier blood pressure measurements.

For our employees and their families, the benefit is clear – we achieved measurably better health outcomes across the entire group.

We are about to launch another such pilot program in cooperation with the State of West Virginia and Highmark Blue Cross. In that effort, we will measure the effect of establishing patient-centered medical homes for individuals and families. We hope to achieve similar results.

### **Implications for the Hospital Industry**

The changes we implemented in 2012 did not reduce overall healthcare costs. The decrease in hospital costs was offset by higher costs for office visits and other non-hospital healthcare.

Our experience mirrors the results found nationwide in ACOs set up by large health insurers and healthcare providers under Medicare's Pioneer program. The 32 plans, which covered nearly 670,000 Medicare beneficiaries in 2012, reported to the Center for Medicare and Medicaid Services (CMS) that their quality-of-care scores were higher than fee-for-service groups on every one of 15 of predetermined quality measures. But the financial results were less clear. Costs continued to rise, but at a slower rate (0.3 % vs. 0.8% for a control group) compared to the previous year. (1)

For hospital administrators, however, there's another message: we have a unique opportunity to innovate. Our ACO covers only a small percentage of the population in our region. The decrease in hospital utilization did not translate into any significant change in the total number of patients in our hospitals. But as the ACA takes hold, and hundreds of thousands of West Virginians sign up for this sort of coverage, we may face shrinking demand for hospital beds. Also, these changes will result in more physicians either seeking employment with hospitals

or joining multi-specialty group practices. Physicians in these organizations can more easily align with other providers, including hospitals, when payment changes from fee-for-service to capitation or global payments for care.

Thus, we will increasingly find ourselves aligning with providers and others to create innovative programs that integrate care delivery across the care delivery spectrum and not just focus on hospital-based services. In order to facilitate this integration and alignment, reliance upon real-time, patient-level data through electronic health records and the application of bioinformatic data analyses on patient health and utilization trends will be essential.

In other states where large ACOs have been successful, they have reduced hospital admissions by up to 20%. That's probably more than West Virginia can achieve, because of our aging population and widespread poor health. Our current planning model at WVUHS assumes that the steady rise in demand for inpatient beds that we have been experiencing for the past decade will level off in the next few years.

Our ACO experience in Morgantown has shown that we can, and should, improve the health of our population by shifting resources toward prevention and targeted services for people with complex or chronic conditions.

That's our responsibility as healthcare leaders – and it's what the "accountable" in "accountable care organizations" requires us to do.

## WEST VIRGINIA'S WHOLESALE AND RETAIL TRADE SECTOR

While the trade sector comprises only 12 percent of economic output generated in West Virginia, it does play a significant role in the state's economy. Indeed, the sector contains a wide range of industries that facilitate the sale and purchase of goods. Retailers generally sell small quantities of goods directly to consumers, while wholesalers act as middlemen, buying large quantities from manufacturers and distributing them to retailers or other wholesalers.

As Figure 3.15 shows, West Virginia's trade sector experienced a milder downturn in output compared to the rest of the nation over the course of the recession. In addition, the sector has managed to stage a solid increase in activity over the past two years, with real output expanding at an average annual rate of 3.4 percent. While the U.S. trade sector has rebounded at a stronger pace of 3.7 percent per year since 2009, the sector is also coming off of a larger drop-off in activity following an average annual rate of decline of 5.5 percent during the recession (compared to 2.6 percent for West Virginia).

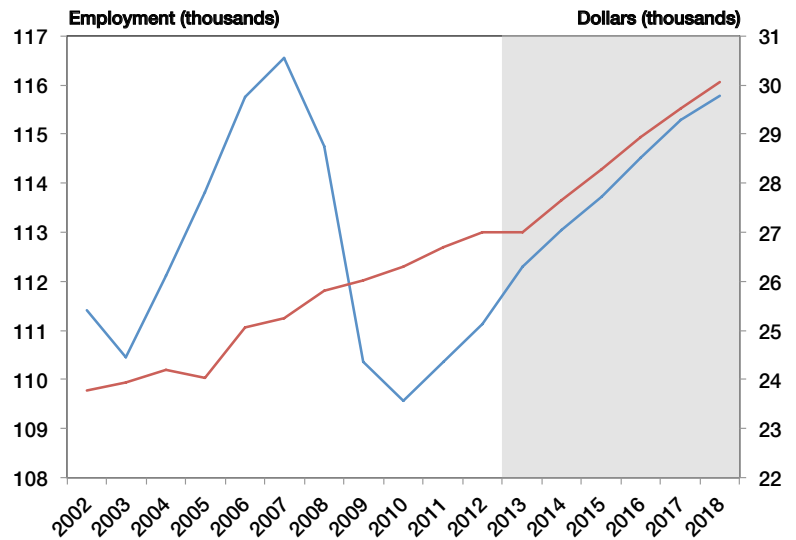
Retailers in West Virginia endured a relatively mild recession, in terms of overall losses in both employment and output. Payrolls shrank over the course of 2008 and 2009, while real output for the sector fell 4 percent in 2008. Between 2008 and 2012, retail sector GDP in the state increased at an average annual rate of 3.4 percent per year, compared to a 2.2 percent rate of increase per year for the nation as a whole. For merchant wholesalers, however, even though the recession was shorter-lived, the recovery has been weaker as statewide gains in wholesale trade output have averaged 2.3 percent per year since 2010, lagging the 3.9 percent average annual growth for the U.S. over the same time period.

### Sector Outlook

The underlying drivers for trade sector activity have firmed over the past few quarters and we expect these improvements to remain in place during the forecast. For example, consumer confidence has risen appreciably as the Thompson Reuters-University of Michigan Consumer Sentiment Index climbed to its highest level in five years. Overall confidence levels remain below those reported prior to the onset of the Great Recession, but consumers also indicate they have a more favorable assessment of future conditions for the economy and their own buying plans for items such as homes and autos.

Another factor that bodes well for the trade sector over the long term is rising disposable income levels. Since the trade sector serves as a forum for exchange

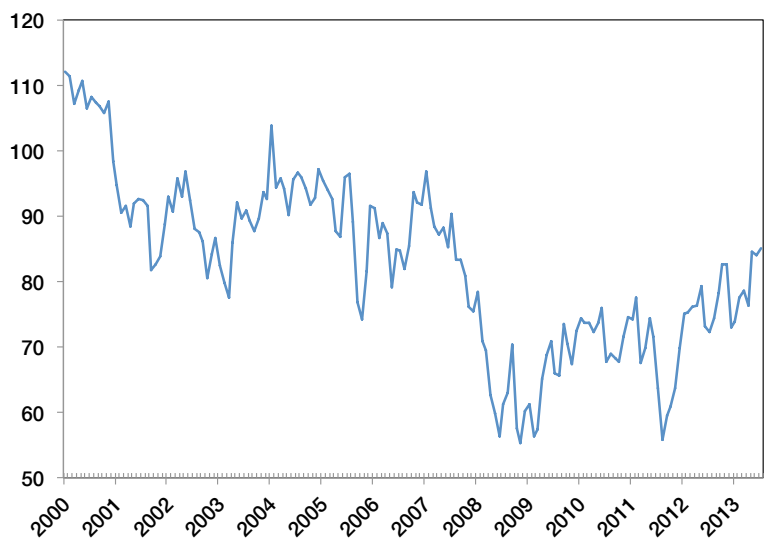
**FIGURE 3.15: West Virginia Trade Sector Employment and Per Capita Disposable Income**



Sources: WVU BBER Macroeconomic Model and US Bureau of Economic Analysis

\*Per Capita Disposable Income is Inflation Adjusted

**FIGURE 3.16: Index of Consumer Sentiment**



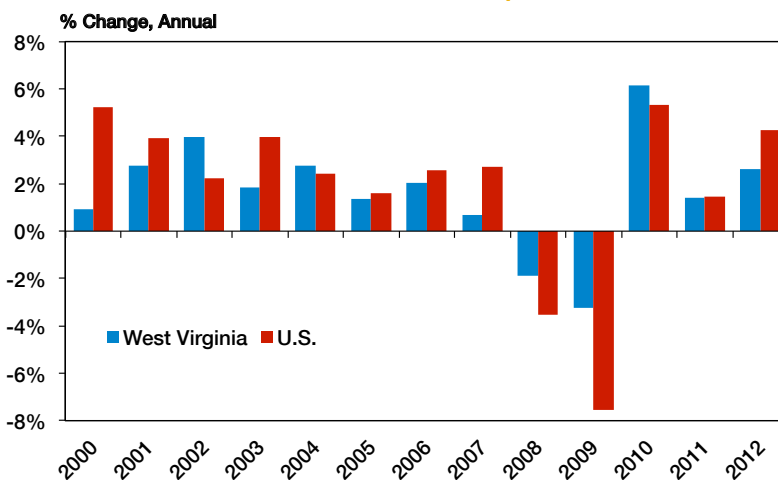
Sources: Thomson Reuters, University of Michigan Surveys of Consumers and IHS Global Insight

between buyers and sellers, the industry depends upon the willingness and ability of consumers to spend money. Total personal income does not offer a completely accurate portrayal of how much each West Virginian can spend, so instead we examine real per capita disposable income to glean information on consumer spending potential for the trade sector, net of inflation.

For the current calendar year, we expect real per capita disposable income in West Virginia will remain

stable, whereas the rest of the nation is forecasted to suffer a modest decline of 0.2 percent. The pause in real disposable income growth for 2013 is an effect of slower growth in transfer payments, higher payroll taxes and higher federal marginal income tax rates for upper-income households. Because a smaller portion of West Virginia residents fall within the top-earning tax brackets, the state is likely to take a smaller hit to disposable income levels. Growth should return for the state and nation for the remainder of the forecast period, but West Virginia should see gains lag the U.S. during the outlook. By 2018, real per capita disposable income should break \$30,000.

**FIGURE 3.17: Trade Sector Output Growth**



Source: Bureau of Economic Analysis

Employment in West Virginia's trade sector has experienced its ups and downs over the past several years, but the forecast calls for a steady pace of growth during the outlook period. Growth for the trade sector as a whole in West Virginia is expected to finish calendar year 2013 with a 1 percent gain, and continue to expand throughout the forecast horizon. However, we do anticipate growth to decelerate over the long term down to a pace of 0.4 percent by 2018. Overall, growth rates for West Virginia's trade sector will lag the national average during the outlook period.

## ENJOYING LEISURE AND HOSPITALITY IN WEST VIRGINIA

The Leisure and Hospitality sector covers a broad range of businesses, activities, and places in West Virginia. The Mountain State is home to wild forests and rivers, historical sites and landmarks, and a rich culture that pre-dates the American Revolution, but also boasts more recent developments such as casinos, racetracks, and adventure resorts that are important to the state's economy. In this section, we explore the current state of the leisure and hospitality sector; present a forecast for the sector; and profile the Summit Bechtel Family National Scout Reserve and casino gambling activities in the state.

### Leisure and Hospitality in West Virginia

Figure 3.18 shows the average annualized growth in West Virginia's leisure and hospitality sector from 2002-2018. Over the past 10 years, employment in the leisure and hospitality sector has grown annually except for 2009. Between 2002 and 2008, the annual growth rate ranged between 1.3 percent (in 2007) and 3.1 percent (in 2003). The Great Recession, which began in late 2007, took its toll on the Leisure and Hospitality sector in 2009 when the annualized growth rate in employment declined by 1.3 percent, representing a loss of approximately 1,000 jobs.

Fortunately, the sector quickly recovered, reaching small positive growth rates again by 2010, then accelerating at 0.9 percent annual growth by 2011. Calendar year 2012 was another year for substantial positive gains in employment in the leisure and hospitality sector when employment in the sector grew by 2 percent annually, reaching a total employment of over 74 thousand jobs. Overall, this represents an average annual employment increase of 1.4 percent since 2002. In 2012, the leisure and hospitality sector was the 4th largest employer in West Virginia, accounting for 10 percent of employment, trailing government, trade, transportation and utilities and the education and health services sectors in terms of employment. While the leisure and hospitality sector is a major employer in West Virginia, it pays considerably less than other sectors. In 2012, the average hourly wage in the sector was \$10.44, significantly below the state average of \$19.55 per hour.

The leisure and hospitality sector's contribution to West Virginia's total output has generally been steady for the past decade, hovering around 4 percent of the state's state GDP. Overall, since 2009, West Virginia's leisure and hospitality industry has continued to rebound from the Great Recession. More opportunities for growth are on the horizon, but as will be discussed in the next section, the forecast for the sector is mixed.

## Leisure and Hospitality Sector Forecast for West Virginia

Job growth is expected to remain fairly stable in 2013, with an increase of 1.8 percent, but then job growth is expected to slow over the remainder of the outlook period. The forecast calls for modest growth in employment of nearly 1 percent per year through 2018. (See Figure 3.18). This modest forecast in employment growth means that jobs in the leisure and hospitality sector will end the outlook period at an employment level of 79,000 in 2018.

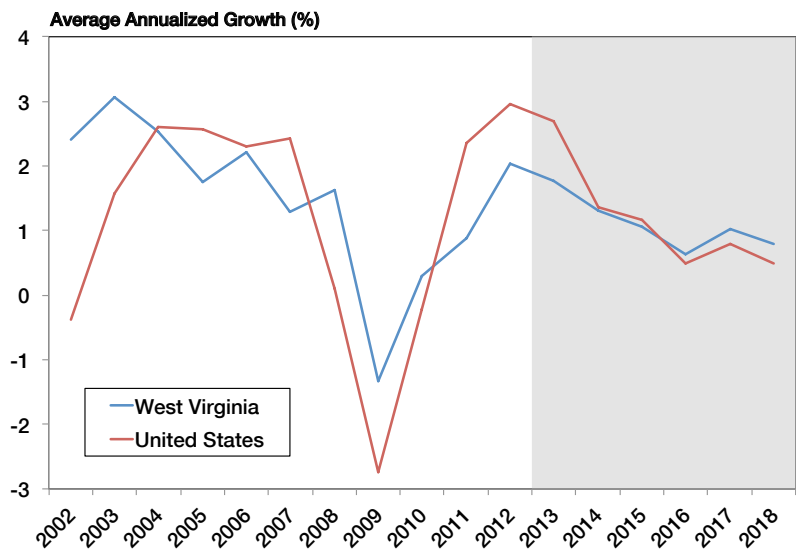
The opening of the Summit Bechtel Boy Scout Reserve and West Virginia University's move to the Big 12 may have an impact on this forecast. Because both of these events occurred only recently, the available forecast data may not fully account for these recent developments or for events scheduled beyond the 2013-2018 forecast period. It is important to note, however, that the introduction of new and different leisure and hospitality opportunities may simply result in transfer of revenue from one industry within the sector to another. It is not clear whether consumers will simply change the way they spend their leisure income, resulting in the same amount of overall spending or will engage in new spending, resulting in an increase in overall spending.

### The Summit Bechtel Family National Scout Reserve

A huge development for the West Virginia adventure tourism industry is the 2013 opening of the \$300 million Summit Bechtel Family National Scout Reserve, a 10,600 acre high-adventure facility located in Fayette and Raleigh counties. The scout reserve is located along the New River Gorge and incorporates whitewater activities, climbing, zip lines, biking, and much more. The 2013 National Scout Jamboree sponsored by the Boy Scouts of America took place at the Summit Bechtel Reserve in July 2013 and drew 30,000 scouts and leaders to West Virginia.<sup>22</sup>

According to an economic impact report released by SYNEVA Economics, the 2013 Jamboree generated nearly \$170 million in income over the past four years. \$121 million went directly into the community and \$48 million was an indirect result of construction spending in the community. The Summit Reserve supported an average of 848 jobs between 2010 and 2013, mostly in construction.<sup>23</sup> This inaugural event represents just the beginning of new tourism for the State. The National Jamboree will return every four years with the next Jamboree scheduled for 2017. An even larger numbers event is the World Scout Jamboree which will take place in 2019. Boy Scouts of America projects that over 80,000 people will attend the 2019 event. This will be the first time in 52 years that the event will be held in the United States. In addition to these one-time events,

**FIGURE 3.18: West Virginia Leisure and Hospitality Sector Employment Growth**



Source: IHS Global Insight

the Summit will be open to individual scouting group camps. The Summit promises to be a boom to local tourism and hospitality in Fayette and Raleigh counties in the years to come.

### Gaming Industry

Another big draw for both in-state and out-of-state tourists is the gaming industry in West Virginia. The state has five casinos: the Casino Club at the Greenbrier; Hollywood Casino at Charles Town Races; Mardi Gras Casino and Resort near Charleston; Mountaineer Casino, Racetrack and Resort in Chester; and Wheeling Island Hotel-Casino-Racetrack.

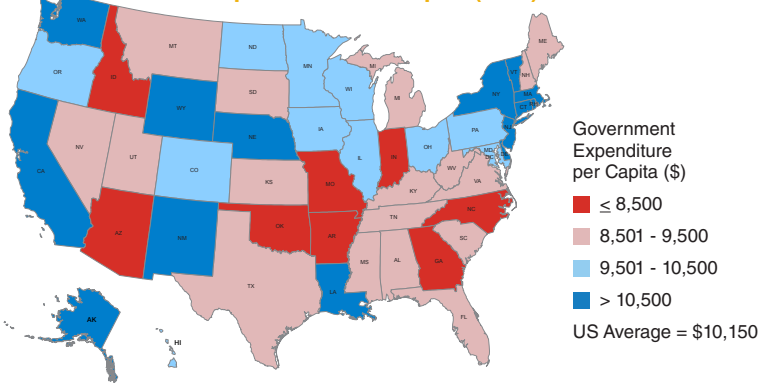
According to statistics reported by the American Gaming Association, West Virginia casinos employed more than 4,300 people in 2012 and paid out approximately \$134.7 million in employee wages. Gross casino gaming revenue was \$948.8 million with \$402.5 million in gaming-related tax revenue. Tax revenue generated through casino gaming is spent on education, services for senior citizens and tourism promotion.<sup>24</sup>

22. <http://www.williamsondailynews.com/news/editorials/2380507/The-Summit-Bechtel-Family-National-Scout-Reserve> (accessed August 8, 2013).

23. <http://www.dailymail.com/News/statenews/201307150020> (accessed August 8, 2013).

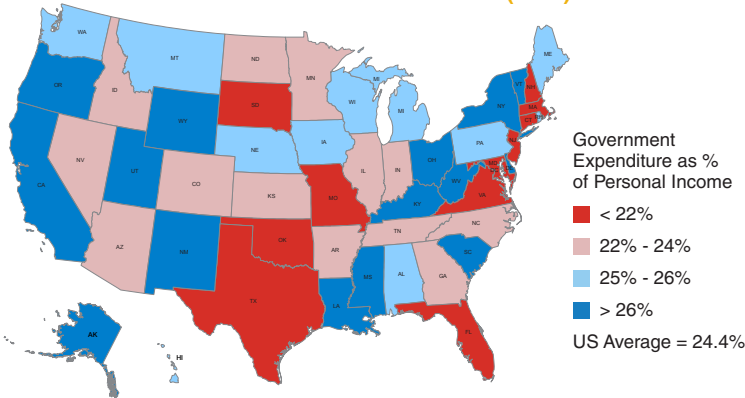
24. <http://www.americangaming.org/industry-resources/state-information/west-virginia> (Accessed August 8, 2013).

**FIGURE 3.19: State and Local Government Expenditure Per Capita (2011)**



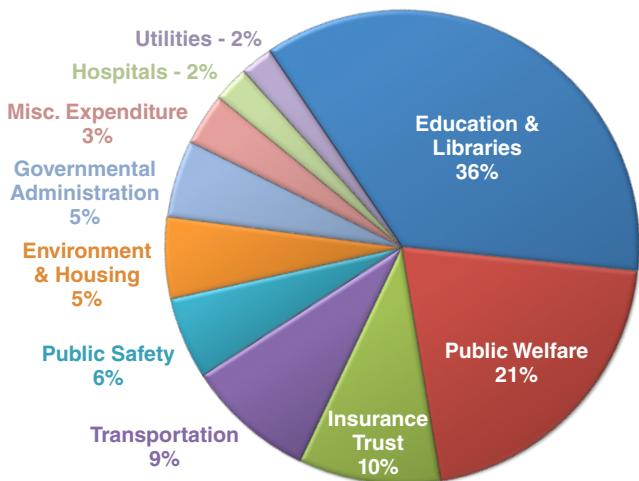
Source: US Census Bureau

**FIGURE 3.20: State and Local Government Expenditure as Share of Personal Income (2011)**



Source: US Census Bureau

**FIGURE 3.21: West Virginia State & Local Government Expenditure Composition (2011)**



Source: US Census Bureau State & Local Government Finance Statistics. Total 2011 Expenditures: \$13,000,033,000

## WEST VIRGINIA GOVERNMENT

As reported above, government is the largest employer in West Virginia, accounting for one-fifth of all jobs in the state.<sup>25</sup> Further, total state and local government spending in the state equals 26.5 percent of West Virginia's total personal income. Taken together, it is clear that government has a significant economic influence in the state, and as such, in this subsection we explore state and local government in West Virginia, paying special attention to its size and composition.

As illustrated in Figure 3.19, West Virginia ranks near the bottom among the US states in terms of the size of overall state and local government spending when measured on a per capita basis. Indeed only 16 states have smaller state and local governments when measured by this metric. However, it is important to also consider government spending measured relative to state personal income, especially since personal income per person in West Virginia falls below the national average. As reported in Figure 3.20, West Virginia's state and local governments are actually among the largest in the US when measured relative to personal income. Total state and local government spending in West Virginia equals 26.5 percent of state personal income, compared to the US average of 24.4 percent; only 11 states have larger governments by this metric. Overall, the answer to the question "How large is state and local government in West Virginia?" is mixed depending on the metric used: The absolute size of the government is relatively small, but a relatively large portion of the state's resources are devoted to government activities.

In Figure 3.21 we report the composition of state and local government spending in West Virginia. As illustrated, West Virginia devotes 36 percent of its overall government resources to education and libraries. This compares to a national average of just under 28 percent. West Virginia also devotes a relatively large share of its government resources to public welfare: overall West Virginia governments devote 21 percent of their overall spending to this category - programs such as Medicare and the State Children's Health Insurance Program - compared to a national average of 15.5 percent. West Virginia governments direct 10 percent of their expenditures to insurance trust expenditures for public employees, which is slightly less than the national average of 11.4 percent. Further, governments in the state focus relatively heavily on transportation spending: in West Virginia 9 percent of total spending goes to transportation related projects, compared to a national average of 5.8 percent.

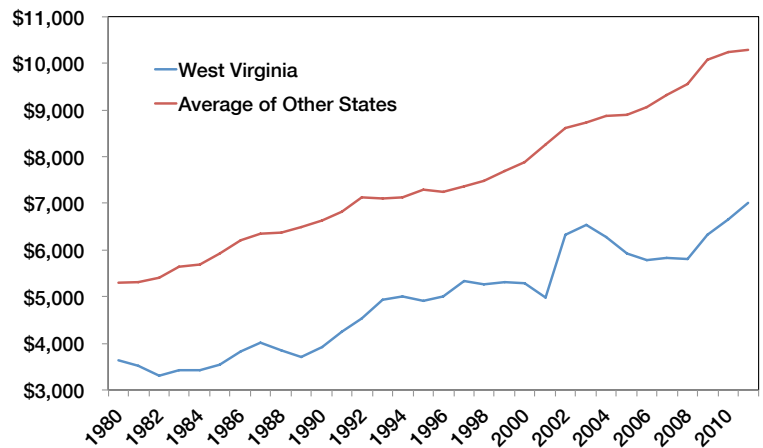
<sup>25</sup> This figure includes federal government employment in West Virginia, in addition to state and local government employment.

In Figure 3.22 we report the growth in state and local government expenditures per person in West Virginia over the past three decades. As illustrated, West Virginia governments have increased their aggregate size from around \$3,700 in total spending per capita in 1980 to around \$6,500 by 2011, in inflation adjusted terms. However, over the entire period West Virginia governments have remained below the national average in terms of spending per capita. Further, the degree to which West Virginia state and local government spending falls short of the national average has widened slightly over the period.

In Figure 3.23 we report state and local government own-source revenue per capita across the US states. Similar to the case with expenditures per capita as discussed above, West Virginia falls in the third lowest grouping among the states in terms of own-source revenues per capita.

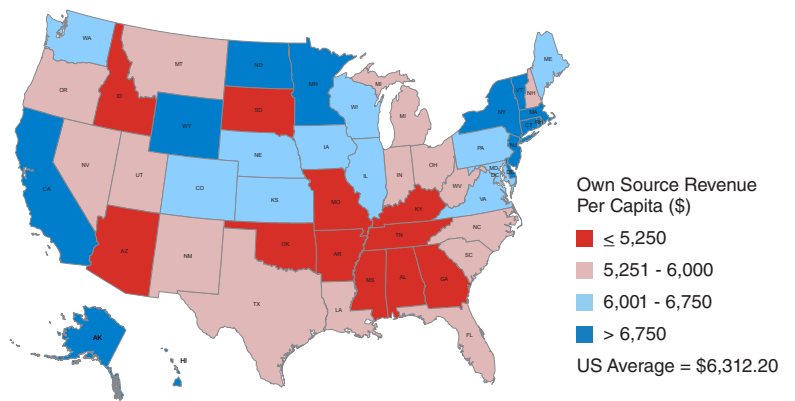
Figure 3.24 illustrates the sources of West Virginia state and local government revenue. West Virginia receives the largest share of its total revenue from the federal government. Overall, 26 percent of total revenue received by West Virginia governments is a transfer from the US Federal government, which is significantly higher than the national average of just under 19 percent. West Virginia governments are in alignment with most states in terms of their reliance on sales taxation: West Virginia governments derive 14 percent of their total revenues from sales taxation, compared to a national average of 13.4 percent. Similarly, West Virginia governments derive 9 percent of their total revenues from individual income taxation, compared to a national average of 8.3 percent. In slight contract, the reliance on the property tax in West Virginia - 8 percent of total revenues - falls short of the national average of nearly 13 percent.

**FIGURE 3.22: West Virginia Real Government Expenditures Per Capita**



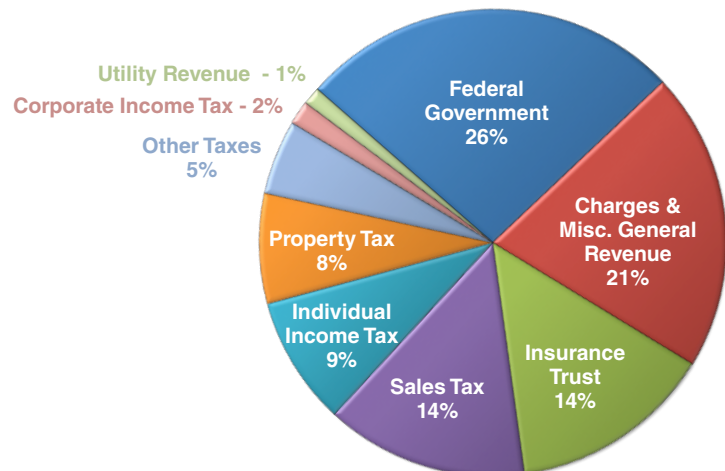
Sources: Tax Policy Center State & Local Finance Initiative and US Census Bureau State & Local Government Finance Statistics

**FIGURE 3.23: State and Local Government Own Source Revenues Per Capita (2011)**



Source: US Census Bureau

**FIGURE 3.24: West Virginia State & Local Government Revenue Composition (2011)**



Source: US Census Bureau State & Local Government Finance Statistics  
Total 2011 Revenue: \$15,397,630,000



## INDUSTRY INSIGHT:

# WEST VIRGINIA FISCAL FORECAST

*By Mark Muchow, Deputy Cabinet Secretary,  
West Virginia Department of Revenue*

**W**est Virginia State government finances continue to recover slowly from the Great Recession. During the five-year period from Fiscal Year 2008 to Fiscal Year 2013, average annual growth in the State General Revenue Fund was just 0.4 percent per year in comparison with the long-term annual average growth rate of closer to 4.0 percent. The official revenue estimates for Fiscal Year 2014 were also developed under the assumption of little or no revenue growth for the current year. The trend of very weak revenue growth necessitated the development of conservative budgets in recent years along with the need to reduce budgets for many government functions in an effort to free up funds for areas of persistent cost pressure, mainly Corrections and Medicaid. The pace of revenue growth is expected to slowly improve over the next couple years to a level closer to 3.0 percent to 3.5 percent per year as employment and income growth resume and growth in the natural gas extraction sector continues to accelerate.

The mining sector and related foreign export growth led the State out of the Great Recession with above average employment growth, income growth and tax revenue growth. Between 2007 and 2012, average annual non-farm earnings

for the West Virginia mining sector grew by 6.0 percent in comparison with the overall average annual non-farm earnings growth rate of 2.8 percent for West Virginia and 1.7 percent for the U.S. economy. Regular severance tax collections grew by an annual average of 7.9 percent between Fiscal Year 2007 and Fiscal Year 2012 while all other general fund revenues were largely unchanged. In addition to generally sluggish economic growth in most non-mining sectors of the economy, the lack of growth in other general revenues was partially attributable to the phase-in of a number of tax reductions, including the gradual elimination of sales tax on food for home consumption.

Major headwinds effectively lowered growth in key economic sectors over the past two years and will continue to detract from future growth over the next two years. Slower economic growth in the world economy and an increase in the value of the U.S. dollar are resulting in falling exports and falling export prices, particularly for metallurgical coal. Domestic coal sales markets are also declining due to more competitive natural gas prices and the retirement of a number of older coal-fired generation plants in the region. A recent U.S. Department of Energy analysis indicates that 8.5 percent of all coal-fired electric power generation capacity in the U.S. and more than 15 percent of coal-fired electric power generation capacity in West Virginia are scheduled to retire between 2012 and 2016. A reduction in electric power generation capacity results in lower State business and occupation tax collections from a tax largely based upon generation capacity.

Reduced coal-fired generation capacity, lower natural gas prices and a long-term significant regional reduction in electricity demand by large industrial users contributed to a 23 percent decline in the domestic distribution of West Virginia coal in 2012. In this environment, regular severance tax collections declined by nearly 11.8 percent and overall general revenues declined by 1.1 percent in Fiscal Year 2013. Collections were also \$90.6 million below original estimates for the year. The Fiscal Year 2014 revenue forecast was originally based upon the assumption of little or no revenue growth. However, revenues will now need to grow by nearly 1.9 percent this year to meet those estimates because actual prior year collections were lower than originally forecast.

Collection growth over the next two years will be heavily dependent upon the performance of the natural gas extraction industry. Severance tax collections are forecast to rise by an average rate of more than 5 percent per year in FY2014 and FY2015 largely due to increasing natural gas production and a more stable pricing environment. Increasing revenues from natural gas production will generally offset an anticipated decrease in coal severance tax revenues over the forecast period. The recent trend of higher natural gas prices should also re-stimulate domestic steam coal sales in the short-term and effectively reduce the rate of decline in coal revenues. In addition to severance tax collection growth, both personal income tax and consumer sales tax revenues are anticipated to grow modestly in response to higher



employment and a trend to greater growth in wage and salary income over the forecast period. Personal income tax collection growth is anticipated to accelerate from less than 2.5 percent in FY2014 to more than 5 percent in FY2015. Sales tax collections are anticipated to rise by up to 3.0 percent by Fiscal Year 2015. A rebound in the housing sector and growth in service-related sectors, such as health care, and leisure and hospitality, should also contribute to greater tax collection growth. In addition, low natural gas prices and an ample supply should lead to some increase in manufacturing activity by the end of the two year forecast.

In the short-term, revenue growth is not anticipated to keep pace with growth in State government expenditures. The published FY2014 Executive Budget presented by the Governor to the Legislature in February of this year projected a FY2015 budget gap of nearly \$265 million. This projected budget gap has not decreased since that time. The FY2014 budget was balanced with more than \$130 million in one-time adjustments. In addition, cost increases for programs such as Medicaid and Corrections were expected to total more than \$100 million. Additional adjustments will be necessary to bring the FY2015 budget in balance. Future projected budget gaps beyond FY2015 gradually narrow to less than \$100 million by FY2018. Improved revenue growth along with on-going budget adjustments should gradually result in a more balanced fiscal outlook. However, increased revenue volatility is also to be expected since 60 percent of the State General Revenue Fund now comes from revenue sources with higher than average volatility such as severance taxes, income taxes and lottery distributions as opposed to 52 percent a decade ago.

## CHAPTER 4: WEST VIRGINIA'S COUNTIES AND MSAs

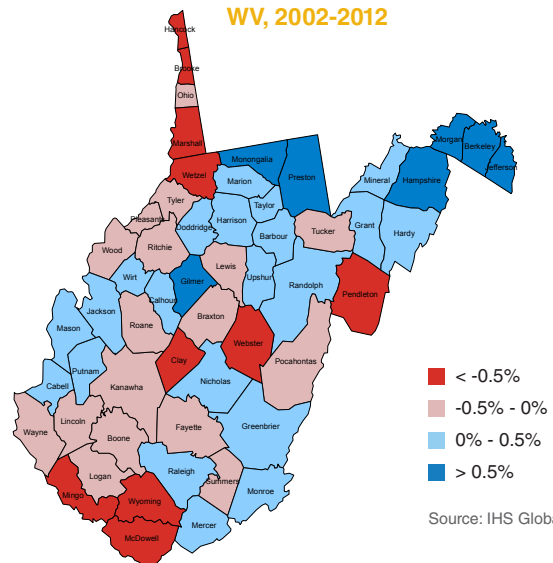
### WEST VIRGINIA'S COUNTIES

The economic performance of West Virginia's counties varied substantially in 2012 with some portions of the state making large gains, with others in decline. The southern and central coal fields faced substantial employment losses, while the natural gas producing regions in the northwest grew in prosperity. The state's Eastern Panhandle grew rapidly as it continues to grow as a bedroom community for Washington, DC. Raleigh and Fayette counties saw a boost in their economies with the construction of the Summit Bechtel Family National Scout Reserve.

### Population

Over the past decade, the state's 55 counties were almost evenly split between those that lost residents (27) and those that registered gains in population (28). The Eastern Panhandle counties of Berkeley, Jefferson and Morgan accounted for three of the five fastest-growing counties in the state between 2002 and 2012, largely as a result of gaining residents moving into the area to take advantage of a lower cost of living, yet remain relatively close to their jobs in Northern Virginia, Maryland or downtown DC. On top of the gains attributed to net in-migration, the state's fastest-growing counties over the 2002 to 2012 time period also added population via natural increase and contained a larger share of younger residents compared to the rest of the state.

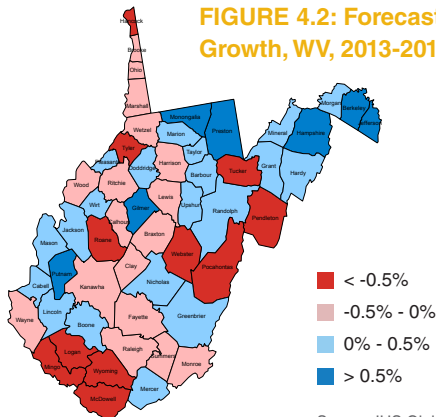
**FIGURE 4.1: Average Annual Population Growth  
WV, 2002-2012**



Monongalia County recorded the third-fastest rate of population growth since 2002, increasing at 1.7 percent per year. In addition, Monongalia's strong rate of growth over the last decade enabled it to become only the third county in the state with a population exceeding 100,000. Among the counties that shrank in population over the past ten years, McDowell, Clay and Wyoming counties experienced the largest percentage declines at 1.9, 0.9 and 0.7 percent, respectively. Most of the counties that experienced outright declines in population not only struggled with losing residents to other areas via net out-migration, but they also saw deaths outnumber births.

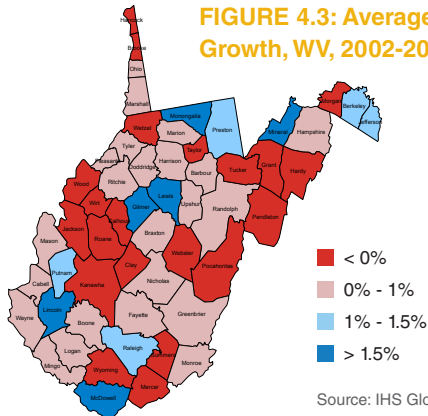
For the 2013 to 2018 outlook period, the counties with the highest rates of population growth from the past 10 years are expected to retain this status going forward. Jefferson and Berkeley counties are forecasted to expand at an average annual rate of 1.5 percent, while Monongalia County will likely continue its recent trajectory of strong population gains, increasing at a rate of 1.3 percent per year. By comparison, the southwestern coalfields region is expected to continue losing residents over the next five years, with the populations of McDowell, Mingo and Wyoming counties projected to decline by at least 0.8 percent per year.

**FIGURE 4.2: Forecast Annual Population Growth, WV, 2013-2018**



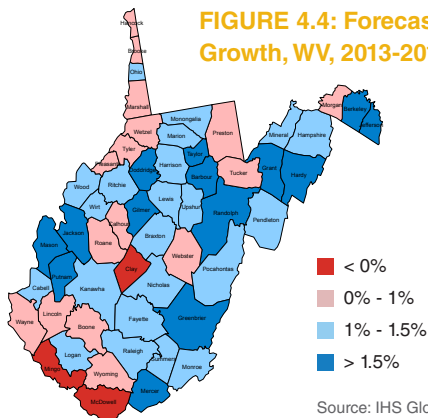
Source: IHS Global Insight

**FIGURE 4.3: Average Annual Employment Growth, WV, 2002-2012**



Source: IHS Global Insight

**FIGURE 4.4: Forecast Annual Employment Growth, WV, 2013-2018**



Source: IHS Global Insight

**Employment**

While their population bases have declined over the past decade, several counties in the state's coalfields experienced an increase in payroll levels since 2002. Monongalia County saw the largest percentage increase in employment of any county in the state between 2002 and 2012, but counties such as McDowell, Boone, Mingo and Logan managed to outpace statewide growth during this time period. Increased coal production helped these areas boost employment within the last 10 years, although a sizeable drop in production during 2012 did erase some of these previous gains, most notably in Boone and Mingo.

Natural gas production has also been a boon to job growth in portions of the state, but most notably in the past several years. Indeed, high-production counties such as Harrison, Lewis and Wetzel counties rank among the top 10 counties in the state in terms of job growth since 2007. Although gas and coal production have benefited a significant number of counties over the past ten years, several areas in the state suffered appreciable job losses during the last 10 years. Hancock and Tucker counties have faced the largest job losses in the last 10 years, with average annual declines of 1.7 percent.

Moving into the 2013 to 2018 outlook period, Gilmer and Putnam counties are expected to experience the fastest job growth over the next five years, with growth averaging more than 2 percent per year. Natural gas production in the state is projected to increase at a slower pace during the outlook period, causing a downshift in job growth for Lewis, Harrison and Wetzel counties. By comparison, production from the state's coalfields is expected to decline modestly throughout much of the outlook period due to a myriad of factors (see the Energy section for a complete discussion). In turn, this will likely lead to job losses or negligible job growth for counties such as Clay, McDowell, Mingo and Wyoming counties jobs over the five-year forecast window.

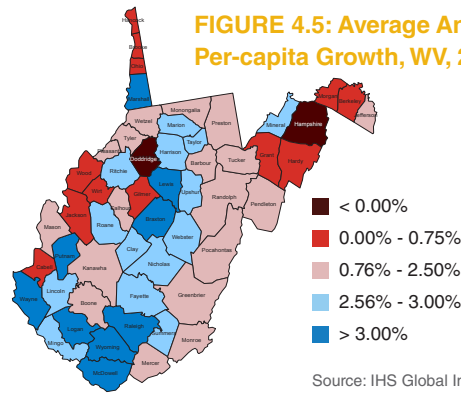
### Income

As was the case with employment and population, growth in inflation-adjusted per capita personal income varied substantially across the state during the last 10 years. Real per capita income growth in 39 of the state's 55 counties outpaced the national average of 0.9 percent per year, while 29 of these also recorded growth ahead of the statewide average (1.3 percent). Job gains in high-wage industries such as coal and natural gas boosted income levels in Lewis and McDowell considerably since 2002, as both of these counties posted average annual growth in excess of 3 percent. Doddridge and Hampshire counties represented the only two counties in the state where per capita income growth failed to keep pace with inflation during the 2002 to 2012 time period.

During the next five years, we anticipate some re-shuffling among the counties in terms of real per capita income growth. Specifically, the state's coalfield counties are expected to see per capita income growth slow considerably through the outlook period in response to the anticipated slump in mining employment and output. In addition, as natural gas production begins to grow at a slower rate over the forecast horizon, real income gains will decelerate for areas such as Lewis and Marshall counties.

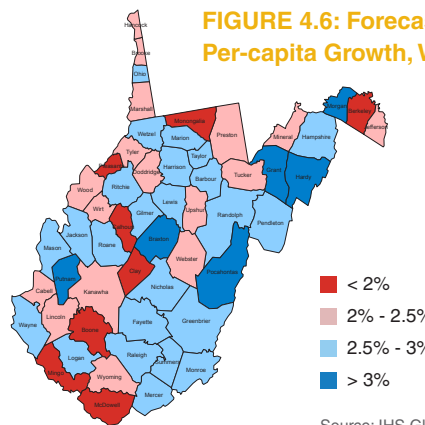
In Figure 4.7 we illustrate how counties will see real per capita income growth over the 2013 to 2018 time period in comparison to their income levels in 2012. For example, Putnam and Morgan counties have relatively high income levels and these areas are also expected to enjoy rapid growth in real per capita income during the next five years. By comparison, higher-income counties such as Monongalia and Berkeley counties are expected to see relatively slow growth going forward.

**FIGURE 4.5: Average Annual Income Per-capita Growth, WV, 2002-2012**



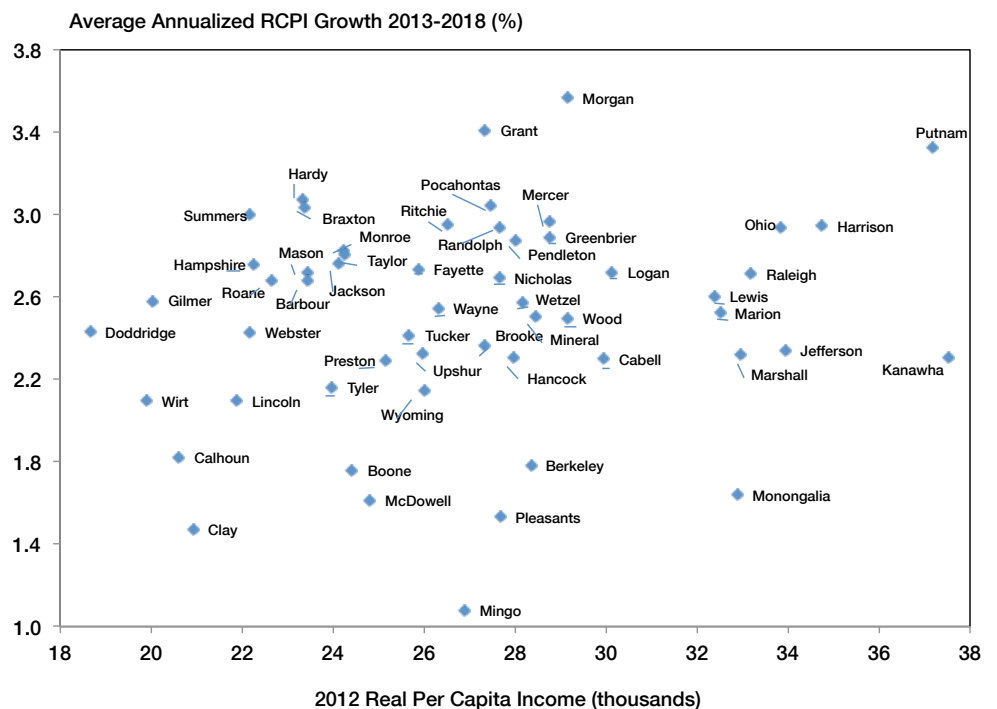
Source: IHS Global Insight

**FIGURE 4.6: Forecast Annual Income Per-capita Growth, WV, 2013-2018**



Source: IHS Global Insight

**FIGURE 4.7: West Virginia Counties Real Per Capita Income**



Source: IHS Global Insight

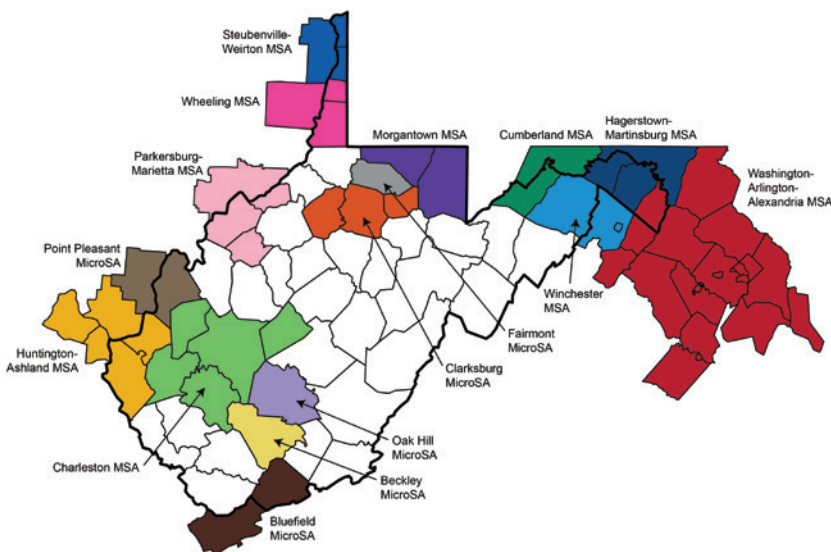
### WEST VIRGINIA'S METROPOLITAN STATISTICAL AREAS

West Virginia has 55 counties and 16 Core-Based Statistical Areas (CBSA)—densely-populated regions designated by the United States Office of Management and Budget. A Metropolitan Statistical Area (MSA) is distinguished by a densely populated city or urban agglomeration with a population of 50,000 or more. The county containing that city becomes the core of the MSA. If an outlying county has at least 25 percent of its labor force commuting from the core area it is included in the MSA. A Micropolitan Statistical Area (MicroSA) is a scaled down version of an MSA; its core city has between 10,000 and 49,999 residents. The state's

CBSAs can be seen in the figure below. This section will only focus on MSA economic activity.

Twenty-one West Virginia counties are included in 10 MSAs. Only two of these metro areas, Morgantown and Charleston, are contained entirely within the state's borders, while the remaining counties are part of metro areas that extend into Kentucky, Maryland, Ohio, or Virginia. The largest is the Washington-Arlington-Alexandria MSA with an estimated population of 5,860,342, in 2012, of which only roughly 40,000 live in Jefferson County, WV. The smallest is the Cumberland, MD-WV MSA with a 2012 estimated population of 101,968 of which 22,046 live in Mineral County, West Virginia.

**FIGURE 4.8: West Virginia Metropolitan Statistical Areas (MSAs)**

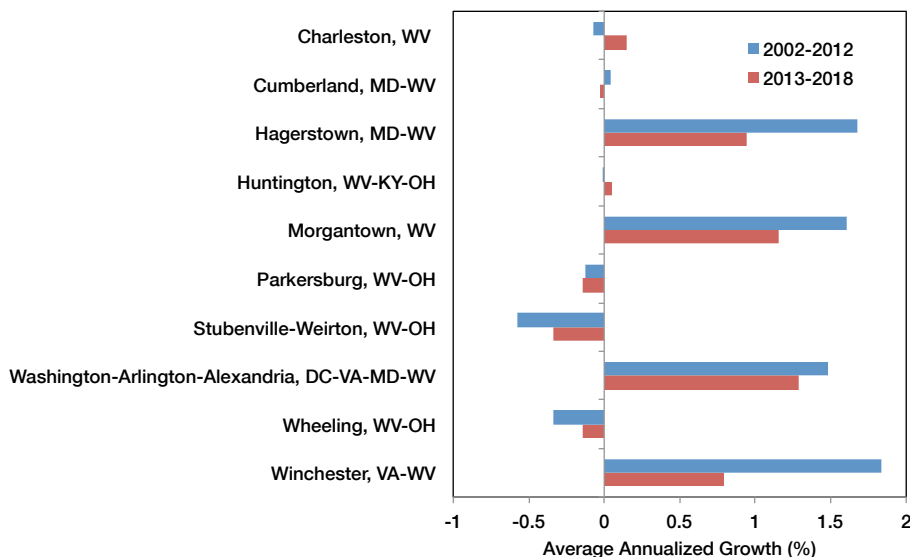


### Population

Population growth or decline often serves as a key indicator of an area's relative economic performance. During the 2002 to 2012 time period, four of West Virginia's MSAs posted a measurable decline in population, with the largest percentage losses in residents occurring within the Weirton-Steubenville metro area, at approximately 0.6 percent per year. The Charleston, Parkersburg and Wheeling metro areas also experienced declines in population ranging from 0.1 and 0.3 percent annually during the past 10 years. While population totals generally remained stable in Cumberland and Huntington, the Hagerstown, Morgantown, Winchester and Washington DC metros recorded strong increases between 2002 and 2012, ranging from an average annual increase of 1.5 to 1.8 percent.

Over the next five years, the forecast calls for Winchester, Washington DC, Morgantown, and Hagerstown MSAs to expand in population by somewhere between 0.8 and 1.3 percent. Each of these areas will likely gain population through natural increase (births minus deaths) and benefit from larger net in-migration flows compared to recent years. Huntington and Charleston are expected to see marginal increases in population during the outlook period, but the long-term trend of a shrinking population base is expected to continue for Cumberland, Wheeling, Parkersburg, and Weirton.

**FIGURE 4.9: West Virginia MSA Population Growth**



### Employment

There was a fairly large difference in job growth across the state's metro areas over the past 10 years. Weirton and Parkersburg saw local employment levels drop by 1.2 and 0.6 percent annually between 2002 and 2012, while Wheeling and Charleston finished the 10-year

period with a slightly lower number of jobs. Morgantown enjoyed the strongest gains in employment at 2.5 percent per year, followed by solid rates of job growth in the Washington DC and Winchester metro areas.

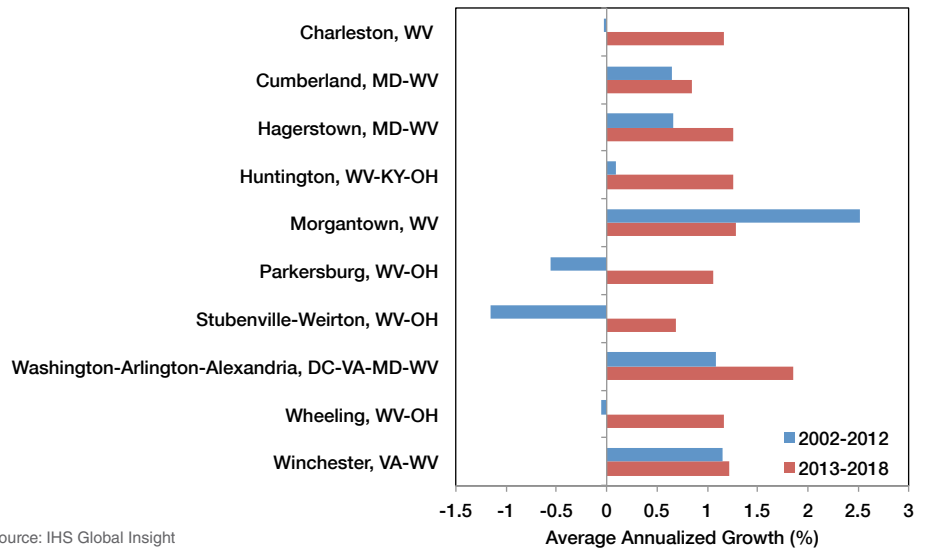
During the 2013 to 2018 outlook period, job growth is expected to turn positive for all of the state's metro areas. Morgantown's economy is expected to perform at a high level going forward, thanks to major expansion and construction activities at WVU; however, the forecast does call for a slower pace of growth over the next five years versus the previous 10. The Washington DC MSA is forecasted to have the strongest rate of employment growth at roughly 1.9 percent per year, though there are some long-term risks to the area due to looming decisions regarding the trajectory of future federal spending, particularly defense. Weirton and Cumberland are expected to see job growth lag the state's other metro areas, with forecasted average annual gains of 0.7 and 0.8 percent, respectively.

**Income**

All of the state's metro areas posted growth in per capita personal income beat inflation over the past 10 years, but once again there was an appreciable difference in performance. Weirton notched the slowest rate of growth with a 0.6 percent average annual increase in real per capita incomes. While job growth was appreciably weaker compared to other metro areas, Cumberland actually registered the largest percentage gain in real per capita personal income, posting an increase of 1.7 percent per year since 2002. The Charleston, Huntington, Morgantown, and Wheeling metro areas saw an average annual rise of more than 1 percent, but Weirton's sluggish economic performance over the past 10 years did weigh on inflation-adjusted income growth, as real per capita incomes climbed less than 0.6 percent per year.

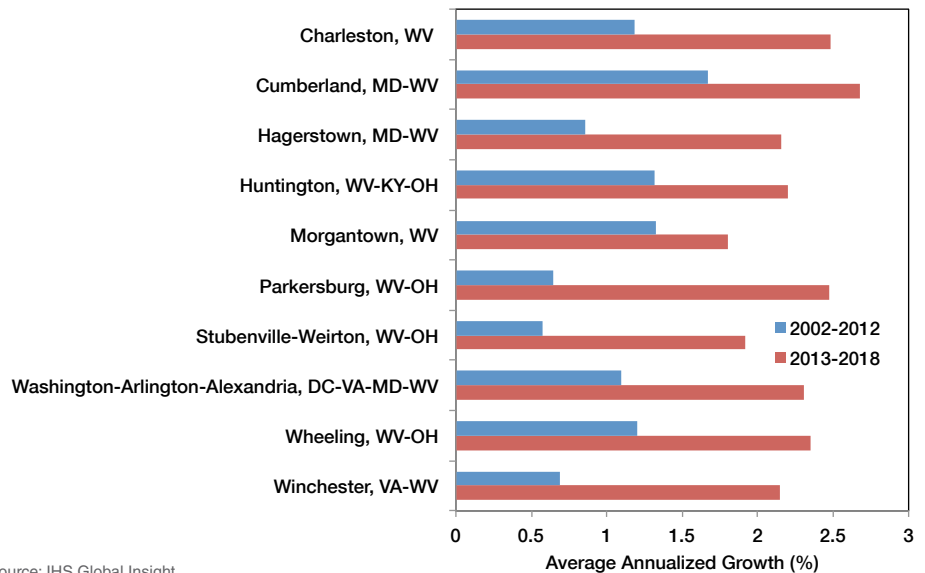
In terms of the level of per capita income, the Washington DC metro area is unsurprisingly the leader due to the high concentration of federal government agencies,

**FIGURE 4.10: West Virginia MSA Employment Growth**



Source: IHS Global Insight

**FIGURE 4.11: West Virginia MSA Real Per Capita Personal Income Growth**



Source: IHS Global Insight

corporate headquarters, defense contractors and other high-paying industries throughout the region. Once again, Steubenville-Weirton lagged the state's other metro areas as real per capita income were estimated to be less than \$28,000 in 2012.

In a similar vein as employment, all of West Virginia's metro areas are expected to register positive growth in real per capita income over the next 5 years. The majority will likely see average annual growth proceed at a rate somewhere between 2.2 and 2.5 percent, although Morgantown and Steubenville are expected to come in below 2 percent growth per year during the outlook period.

## CHAPTER 5: SPECIAL TOPICS: HEALTH CARE DISPARITIES IN WEST VIRGINIA

### OVERVIEW

A major focus of healthcare policy today in many developed nations, including the United States, is to lessen or eliminate health disparities. The Health and Resources Services Administration (HRSA), a division of the U.S. Department of Health and Human Services, defines health disparities as “population-specific differences in the presence of disease, health outcomes, or access to health care.”<sup>26</sup> Disparities may also exist in the quality of healthcare. Many factors contribute to health disparities, including socioeconomic status; race and ethnicity; gender; geographic location; access to health insurance and healthcare; and personal health behaviors. Despite concerted efforts to reduce disparities, disparities continue to exist even after controlling for differences in income, health insurance and access to care.<sup>27</sup> Indeed, the challenge in reducing health disparities likely lies in the complex nature of the problem. Even if there is success in eliminating disparities in access to healthcare and health insurance, health disparities will likely remain because of the complex and important roles personal health behaviors, biology, genetics, the environment, socioeconomic status, and health policy play in determining overall health status. In this Special Topics chapter on health disparities in West Virginia, we provide a synopsis of where West Virginia stands relative to other states on several key health indicators. First we look at major causes of death for which (un)healthy lifestyles are a major risk factor: heart disease, cancer and diabetes. We then look at

health risk factors and finally we examine access to healthcare and health insurance.<sup>28</sup>

### MAJOR CAUSES OF DEATH: ALL CAUSE, HEART DISEASE, CANCER AND DIABETES

The 2013 Health Disparities Profiles provides data from 2009 on key health indicators at the state level for different racial and ethnic populations in each of the 50 states and other territories.<sup>29</sup> Low numerical rankings indicate better relative health status. Figure 5.1 shows that West Virginia ranks 47th out of the 54 ranked entities in heart disease deaths with 218 deaths per 100,000 population; 54th (last) for total cancer deaths (208 deaths per 100,000 populations); and 51st out of 54 ranked entities for diabetes-related deaths (108 deaths per 100,000 population).

Health disparities by race and ethnicity exist for all the all cause death rate and disparities by race are present for heart disease, cancer and diabetes-related deaths. Death rates are highest among the non-Hispanic black population in West Virginia at 1,054 deaths per 100,000 population due to all causes; 254 deaths per 100,000 population for heart disease; 202 deaths per 100,000 population for all types of cancer; and 142 diabetes-related deaths per 100,000 population. It is worth noting that in 2010 West Virginia’s population was 94 percent non-Hispanic white. 3.8 percent of the population was non-Hispanic black; 1.2 percent was Hispanic; 0.8 percent was Asian/Pacific Islander; and 0.2 percent was American Indian/Alaskan Native.

**FIGURE 5.1: West Virginia Profile - Major Causes of Death (2009)**

Major Causes of Death (rate per 100,000)	Non-Hispanic White	Non-Hispanic Black	Hispanic	American Indian/Alaskan Native	Asian/Pacific Islander	State Total	State Rank
All Causes	956.6	1,053.6	151.7	193.8	383.7	949.9	54
Heart Disease	219.4	254.2	n/a	n/a	105.7	218.1	47
Cancer (all types)	210.3	201.9	n/a	n/a	107.8	208.2	54
Diabetes-Related	108.7	142.4	n/a	n/a	n/a	108.4	51
Population (2010)	94.1	2.8	1.2	0.2	0.8	1,852,994	

26. <http://www.news-medical.net/health/Health-Disparities-What-are-Health-Disparities.aspx> (Accessed August 9, 2013).

27. <http://www.ncsl.org/issues-research/health/health-disparities-overview.aspx> (Accessed August 9, 2013).

28. The statistics and data presented and summarized throughout this chapter were obtained from three primary sources: 1) The Office on Women’s Health Health Disparities Profiles; 2) the National Healthcare Quality and Disparities Report (NHRQ) maintained by the Agency for Healthcare Research and Quality (AHRQ); and 3) Healthy People 2020 (HealthyPeople.gov).

29. [http://www.healthstatus2020.com/disparities/ChartBookData\\_search.asp](http://www.healthstatus2020.com/disparities/ChartBookData_search.asp) (Accessed August 9, 2013).

Figure 5.2 shows the distribution of all-cause mortality rates for the United States. As the map indicates, West Virginia is the northernmost state among the block of states in the top quintile (815.9 - 949.9) of all cause deaths per 100,000 population. The other states in the top quintile are Kentucky, Tennessee, Arkansas, Oklahoma, Louisiana, Mississippi, Alabama, Georgia and North Carolina.

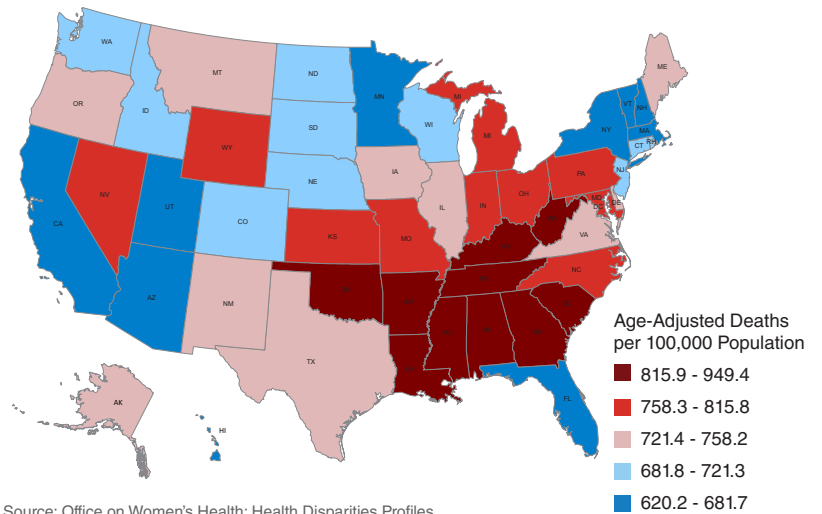
**HEALTH RISK FACTORS**

Mortality due to heart disease, cancer and diabetes can be reduced through improvements in some key risk factors including high blood pressure, physical activity, nutrition, and smoking. West Virginia ranks poorly across all of these measures which undoubtedly contributed to the high mortality rates presented in the previous section. Figure 5.3 shows that 35 percent of West Virginians were diagnosed with high blood pressure in 2011. Relative to other measures, West Virginia's rank is better for this health indicator – it ranks 43rd out of 54 entities. The percent of obese adults (age 20 and over) was 33 percent in 2011. West Virginia ranked 50th out of 54 on this measure. The percentage of non-Hispanic blacks (43 percent) and Hispanics (37 percent) have higher blood pressure which is higher than the percentage among non-Hispanic whites (35 percent). With respect to ethnic and racial disparities in obesity, non-Hispanic blacks and non-Hispanic whites have higher rates of obesity than Hispanics. High blood pressure and obesity are both major risk factors for heart disease, cancer and diabetes.

Figure 5.4 shows the distribution of obese adults across the United States. West Virginia is in the highest quintile (with between 30.6 percent and 35.5 percent of adults being obese) but stands out in this quintile among its neighboring states. Ohio, Virginia, and Kentucky are in the 4th highest quintile and Pennsylvania and Maryland are in the middle quintile.

Both of these factors can be moderated by engaging in healthy behaviors like regular physical activity, eating well, and not smoking. Approximately 34 percent of West Virginians reported being physically inactive in 2011. Physical inactivity was lower among Hispanics

**FIGURE 5.2: All Cause Mortality Rates - United States (2009)**

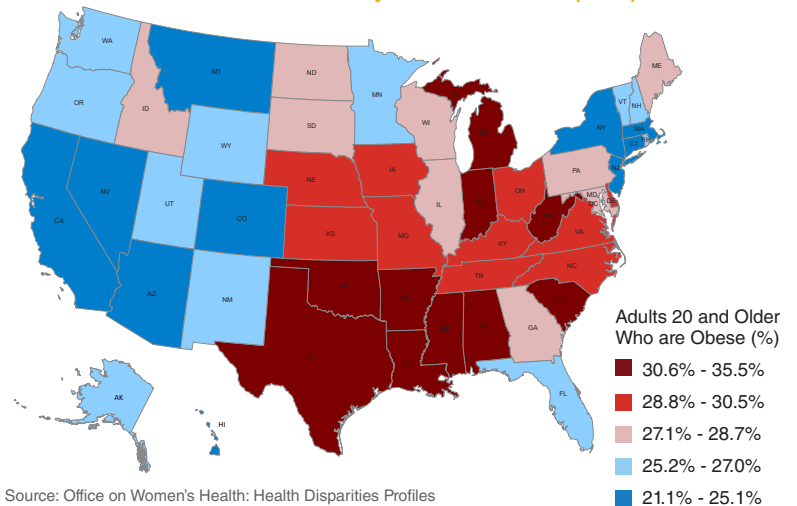


**FIGURE 5.3: West Virginia Profile - Health Risk Factors (2011)**

Health Risk Factor (percent)	Non-Hispanic White	Non-Hispanic Black	Hispanic	American Indian/Alaskan Native	Asian/Pacific Islander	State Total	State Rank
Diagnosed High Blood Pressure	34.9	43.0	36.9	n/a	n/a	35.1	43
Obesity	32.8	35.0	30.8	n/a	n/a	32.9	50
No Leisure Time Physical Activity	34.1	36.1	28.3	n/a	n/a	32.9	49
Smoking Currently	30.2	33.0	33.9	n/a	n/a	30.2	52
Eats 5+ Fruits & Vegetables a Day	15.9	7.4	16.1	n/a	n/a	16.0	52

Source: Office On Women's Health Quick Health Data Online  
 Note: State rank includes the 50 states, District of Columbia, Guam, Puerto Rico and Virgin Islands

**FIGURE 5.4: Obesity – United States (2011)**



(28.3 percent) than among non-Hispanic whites (34.1 percent) and non-Hispanic blacks (34.1) percent. For inactive people, even small increases in physical activity are associated with improved health outcomes. One indicator of eating well is eating 5 or more servings of fruit and vegetables a day. Only 16 percent of West Virginians reported eating 5 or more servings of fruit and vegetable a day which puts the state's rank at 52 out of 54 on this indicator. Non-Hispanic blacks fare far worse on this measure (7.4 percent) than Hispanics (16.1 percent) and non-Hispanic whites (15.9 percent). West Virginia also ranks 52nd out of 54 in terms of current smoking. 30.2 percent of West Virginians currently smoke. Public health and public education efforts at improving West Virginia's ranking on each of these measures will improve the overall health of population and reduce deaths due to heart disease, cancer and diabetes.

Figure 5.5 shows the percentage of adults with no leisure-time physical activity in the United States. The pattern in this figure is very similar to that in Figure 5.2 above. West Virginia is in the highest quintile but it stands out relative to its neighboring states. Ohio and Kentucky are in the 4th quintile; Pennsylvania and Maryland are in the middle quintile and Virginia is in the 2nd quintile.

### HEALTH INSURANCE COVERAGE AND HEALTHCARE

Much of the efforts in the United States to reduce health disparities focus on improved access to quality healthcare. An important step to improving access to healthcare is the availability of affordable health insurance. The United States is somewhat unique among developed nations in that it is one of the few countries that relies more heavily on privately funded, rather than publicly funded health insurance, and therefore, health expenditures. According to OECD statistics, publicly funded health expenditures accounted for 47.8 percent of total health expenditures in 2011 which is significantly lower than the OECD average of 72.2 percent.<sup>30</sup> Mexico is the only other OECD country with lower public expenditures on health (47.3 percent). One implication of a largely privately funded healthcare system is greater disparities, particularly across income levels, in access to healthcare and health insurance. Figure 5.6 shows the distribution of health insurance coverage in the United States. In West Virginia, 75 percent of the adult population aged 18-64 had health insurance coverage in 2009. West Virginia ranked 41st out of 54 on this measure. The percentage of non-Hispanic blacks with health insurance coverage was lower at 65.3 percent.

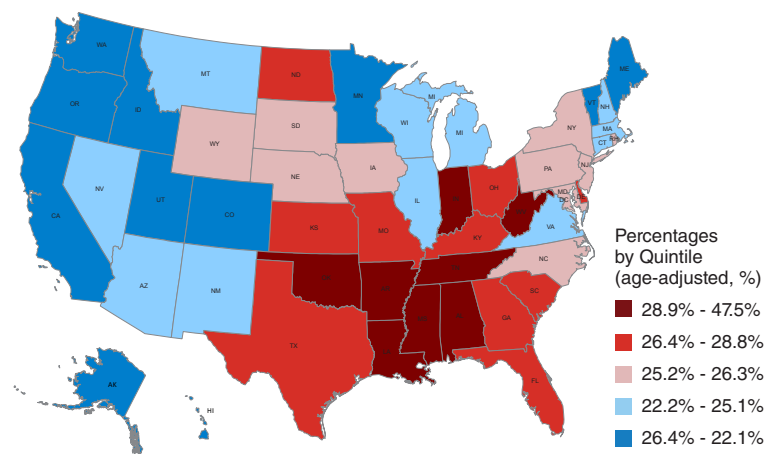
West Virginia was in the 4th quintile for health insurance coverage along with Kentucky, Tennessee, North Carolina, Alabama, Indiana and some Western states. The bordering states, Ohio, Pennsylvania and Maryland were in the 2nd quintile and Virginia was in the middle quintile.

A positive association between wealth and health and healthcare use has been found in numerous academic studies over time and across nations.<sup>31</sup> As a result, indicators of economic status are often used to assess health disparities. The distribution of income across a population measures income disparity or inequality. One such common measure is the Gini coefficient. It takes on values between 0, indicating income is perfectly distributed across the population (complete

30. OECD Health Data 2013, <http://stats.oecd.org/Index.aspx?DataSetCode=SHA> (Accessed August 10, 2013).

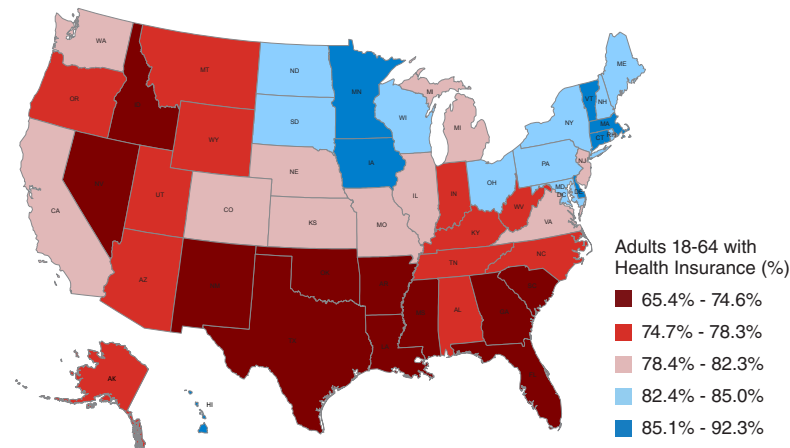
31. Wagstaff, A. (2000). Income inequality and health: What does the literature tell us? Annual Review of Public Health, 21(1).

**FIGURE 5.5: No Leisure Time Physical Activity – United States (2011)**



Source: Office on Women's Health: Health Disparities Profiles

**FIGURE 5.6: Health Insurance Coverage – United States (2009)**



Source: Office on Women's Health: Health Disparities Profiles



equality), and 1, indicating income is perfectly skewed towards the wealthy (complete inequality of income). In 2012, the Gini coefficient for West Virginia was 0.47. The distribution of income in West Virginia has been rather stable between 1990 and 2012, with Gini coefficients ranging between 0.41 and 0.485.<sup>32</sup>

The Agency for Healthcare Quality and Research (AHRQ) provides information on racial, ethnic and income disparities in preventable hospitalizations and quality of hospital, ambulatory, home health and nursing home care.<sup>33</sup> Tables 5.3 and 5.4 summarize some of these statistics for income disparities in ambulatory care.<sup>34</sup>

Figure 5.7 shows West Virginia's performance compared to the United States on three ambulatory care process measures: cancer and cholesterol screenings; diabetes management and vaccinations. Disparity across these process measures describes use among low income households (less than \$25,000) compared to use among high income households (\$75,000 or greater). Overall, the performance in West Virginia is in the strong range. This means that West Virginia is doing better than the U.S. on several of the measures indicating less disparity in ambulatory care process measures.<sup>35</sup> Looking at screenings, West Virginia performed better than the United States for blood cholesterol screenings

**FIGURE 5.7: West Virginia Profile - Ambulatory Care Processes**

Ambulatory Care Process	Preferred Outcome	Relative Rate: WV Low Income/ High Income	Relative Rate: US Low Income/ High Income	Comparative Rate Value: WV to US
<b>Cancer and Other Screenings</b>				
Women ages 50-74 who received mammogram in last 2 years, 2008	High	0.77	0.80	0.97
Women ages 21-65 who received Pap Smear test within past 3 years, 2008	High	0.79	0.86	0.93
Adults 50-75 years who ever received colorectal cancer screening, 2008	High	1.26	1.27	0.99
Adults who received blood cholesterol measurement in last 5 years, 2009	High	0.85	0.77	1.10
<b>Diabetes Management</b>				
Adults age 40+ with diagnosed diabetes who received a dilated eye exam in the last 12 months, 2009	High	0.89	0.87	1.03
Adults age 40+ with diagnosed diabetes who had their feet checked for sores or irritation in the last 12 months, 2009	High	1.00	0.88	1.14
Adults age 40+ with diagnosed diabetes who received an influenza vaccination in the last 12 months, 2009	High	0.84	0.81	1.03
<b>Vaccinations</b>				
High-risk adults ages 18-64 who received an influenza vaccination in the last 12 months, 2009	High	0.73	0.74	0.98
Adults age 65 and over who received an influenza vaccination in the last 12 months, 2009	High	0.83	0.80	1.04
High-risk adults ages 18-64 who ever received a pneumococcal vaccination, 2009	High	1.30	1.11	1.17
Adults age 65 and over who ever received a pneumococcal vaccination, 2009	High	0.85	0.79	1.08

Source: AHRQ National Health Care Quality and Disparities Reports

32. <http://www.americashealthrankings.org/WV/gini/2012> (Accessed August 10, 2013).

33. <http://statesnapshots.ahrq.gov/snaps11/disparities.jsp?menuId=46&state=WV&caretype=0> (Accessed August 10, 2013).

34. Insufficient data for West Virginia were available to construct measures of the quality of hospital care of individuals living in low-income communities compared to individuals living in high-income communities.

35. <http://statesnapshots.ahrq.gov/snaps11/SnapsController?menuId=59&state=WV&action=bycare&level=81&caretype=7> (Accessed August 10, 2013).

with a relative rate of 1.1 and similar to the United States for cancer screenings with relative rates between 0.93 and 0.97. Within West Virginia, there is less disparity in colorectal cancer screening than in the other screenings. The relative rate for colorectal cancer screening is 1.26 indicating that low income households reported having a colorectal cancer screening more often than high income households. West Virginia's had less income disparity across all measures of diabetes management than the United States with rates ranging between 1.03 and 1.25. West Virginia performed well relative to the United States across all of the vaccinations measures except for high risk adults receiving flu shots.

Figure 5.8 presents statistics on ambulatory care sensitive hospitalizations. Evidence suggests that these types of admissions could have been avoided, at least in part, through high quality ambulatory care. The table compares admissions for low-income and high-income communities in West Virginia. Individuals in low-income communities are patients who resided in zip codes with median household incomes of less than \$39,000. Patients in high-income communities lived in zip codes with median annual household incomes of \$64,000 and above.<sup>36</sup>

Compared to the U.S., the performance of West Virginia in ambulatory care hospitalizations is in the

average range. The income disparity in ambulatory care sensitive hospitalizations is greater in West Virginia than the income disparity in ambulatory care processes. For example, admissions for chronic obstructive pulmonary disease were far higher in low-income (544.22 admissions per 100,000 population) than in high-income communities (190.08 admissions per 100,000 population). This pattern persists across all of the ambulatory care-sensitive hospitalizations reported in Table 5.4.

## SUMMARY

West Virginia faces a formidable battle in its efforts to reduce health disparities. It has some of the highest death rates for heart disease, cancer, and diabetes in the country. The state ranks among the bottom tier of states across health risk factors like high blood pressure, physical inactivity, eating well, smoking, and obesity. On the bright side for West Virginia, the state is performing better than or as well as the United States for preventive care measures such as cancer and cholesterol screenings and vaccinations. The poor rankings on lifestyle-related measures taken together with the good rankings on preventive measures suggest that a policy focus on encouraging healthy lifestyles should help to improve the overall health of West Virginians.

**FIGURE 5.8: West Virginia Profile - Ambulatory Care Sensitive Hospitalization**

Ambulatory Care Measure	Low Income Communities	High Income Communities
<b>Respiratory Disease</b>		
Admissions for chronic obstructive pulmonary disease per 100,000 population, age 18 and over	544.22	190.08
Bacterial pneumonia admissions per 100,000 population, age 18 and over	562.02	433.5
<b>Heart Disease</b>		
Admissions for congestive heart failure per 100,000 population, age 18 and over	477.58	255.58
<b>Diabetes</b>		
Admissions for diabetes with short-term complications per 100,000 population, age 18 and over	94.48	68.13
Admissions for diabetes with long-term complications per 100,000 population, age 18 and over	135.52	62.37

<sup>36</sup> <http://statesnapshots.ahrq.gov/snaps11/SnapsController?menuId=65&state=WV&action=disparities&level=85&caretype=3> (Accessed August 10, 2013).

## APPENDIX A: GLOSSARY OF TERMS

Annual Growth Rate	between consecutive years is calculated as: $\left( \frac{X_t}{X_{t-N}} - 1 \right) \times 100$
Average Annual Growth Rate	is calculated for annual data as: $\left[ \left( \frac{X_t}{X_{t-N}} \right)^{1/N} - 1 \right] \times 100$
Gross Product	is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products; calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Gross product can be calculated for various sized economies. This paper references Gross Product for counties (GCP), MSAs (GMP), states (GSP), and the domestic economy as a whole (GDP).
Metropolitan Statistical Area	is distinguished by a densely populated city or urban agglomeration with a population of 50,000 or more according to the US Office of Management and Budget; a county containing that city become the core of the MSA and if an adjacent county has at least 25 percent of its labor force commuting to or from the core area it is including in the MSA.
Personal Income	is the sum of the incomes of an area's residents; it is calculated as the sum of wages and salaries, proprietor's income with inventory valuation and capital consumption adjustments, rental income of persons with capital consumption adjustments, personal dividend income, personal interest income, and personal current transfer receipts less contributions for government social insurance.
Per Capita Personal Income	is the mean personal income within an economic aggregate, such as a country or city. It is calculated by taking a measure of personal income and dividing it by the total population. Per capita personal income is often used as average income, a measure of the wealth of the population of a nation, particularly in comparison to other nations.
Population	is the number of persons whose usual place of residence was within the area at the time the census was taken. It is also referred to as resident population. Persons in the military or institutionalized are counted where the military base or institution is located.
Real	data has been adjusted for inflation. Using real data eliminates the year-to-year changes in price and gives a clearer picture of the true changes in purchasing power, production, etc.
Real Dollars	dollar amounts have been adjusted for inflation. Using real dollars eliminates the year-to-year changes in price and gives a clearer picture of the true changes in purchasing power.
Unemployment Rate	is the percent of the civilian labor force that is unemployed. The civilian labor force is comprised of non-institutionalized persons 16 years of age or over who are employed or unemployed. A resident is considered to be unemployed for the month if that persona is at least 16 years old and is not currently employed but is available and actively looking for work during the survey week (the week including the 12th of the month).

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