

# Economic Impact of Business Development on Post-Mined Lands in West Virginia

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# **ECONOMIC IMPACT OF BUSINESS DEVELOPMENT ON POST-MINED LANDS IN WEST VIRGINIA**

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## **Disclaimer:**

The contents of this report reflect the views of the authors who are responsible for the accuracy of the data presented herein. The views expressed in this report are those of the authors and do not reflect the official policy or position of Marshall University or its governing bodies. The use of trade names, if applicable, does not signify endorsement by the authors.

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# **ECONOMIC IMPACT OF BUSINESS DEVELOPMENT ON POST-MINED LANDS IN WEST VIRGINIA**

## **Introduction**

The Center for Business and Economic Research (CBER) was contracted by the Office of Coalfield Community Development (OCCD) of the West Virginia Division of Energy to assess the economic impact of employment on post-mined lands<sup>1</sup> in West Virginia. The purpose of this report is to provide a conservative estimate of the economic impact as a result of this development on prior mining sites.

## **Methodology**

This report focuses on employment data on post-mined lands collected from 18 West Virginia counties. The analysis is separated into three regions for a more concise assessment. Methods used are described in detail below.

### **Collection and Calculation of Employment Data**

Employment data for businesses operating on post-mined lands in each county was collected from county Economic Development Authorities (EDAs) by the OCCD. The number of employees for each business was separated into three employment categories:

- Full-time employees
- Part-time employees
- Seasonal/construction employees.

Along with employment numbers, the average number of hours worked each week for part-time and seasonal employees was collected. This information is necessary to compute the full-time equivalence (FTE) for each business. In most cases, 20 hours per week is assumed for part-time and seasonal individuals. In a minimal number of cases, an alternate average number of hours worked per week was reported. The appropriate average was used in such cases.

Although the number of individuals employed for contracting work is collected, these individuals are excluded from this analysis. Construction is temporary in that while these individuals may continue to be employed after construction ceases, there is no guarantee that it will occur in that area. Further, this number will not necessarily represent employment at currently non-operational development sites after construction is complete. As a result, including the number of construction employees in this analysis would misrepresent current, stable employment in these counties.

Due to lack of county-level information, the number of full-time and part-time Hatfield-McCoy Trails employees was provided in aggregate for the trail system as a whole. In addition, only

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<sup>1</sup> Post-mined lands refer to a parcel of property where coal mining was previously conducted and mining operations have ceased.

total employees—not distinguished between full-time and part-time individuals—were provided for the six counties. An assumption was made based on the ratio of employees in each county to the total employees in the Hatfield-McCoy Trails system to determine FTEs per county for this business. For use in the IMPLAN® software (detailed in a following subsection), FTEs were converted to employment figures via ratios provided by the software.

Calculated FTEs for each county are provided in the map in Appendix A.

### **Establishment of Regions**

Due to the geographic spread of counties with employment on post-mined lands, conducting an economic impact study of the entire State—including all 55 counties—is unreasonable and could possibly exaggerate results. To better capture the impact, counties included in this report are divided into three regions, as explained in the following three subsections. Additional counties—two each in Regions I and III and three in Region II—are included in each region to simulate interconnected economic activity related to spending by businesses and households in these areas. It is expected that the inclusion of these seven additional counties will capture a reasonable amount of leakages out of the focus counties without including unrelated economies.

#### *Region I*

Region I includes counties in the northern panhandle of West Virginia. The counties of Hancock and Ohio reported employment on post-mined lands. To complete this region and its reasonable economic impact, the counties of Brooke and Marshall are included. The map in Appendix B depicts Region I of this report.

#### *Region II*

Four counties in the north/northeastern portion of the State reported employment on post-mined lands. These counties are:

- Grant
- Harrison
- Monongalia
- Preston.

With the addition of three other counties—Marion, Taylor and Tucker—these seven counties comprise Region II of this report. A map of this region is provided in Appendix C.

#### *Region III*

A total of 12 counties in southern West Virginia reported employment on post-mined lands. Unsurprisingly, this portion of the State comprises a bulk of West Virginia’s mining activity. These 12 counties include:

- Boone
- Clay
- Fayette
- Greenbrier

- Kanawha
- Logan
- McDowell
- Mercer
- Mingo
- Nicholas
- Raleigh
- Wyoming.

Along with two additional counties—Monroe and Summers —this 14 county area creates Region III of this analysis. A map of this region is provided in Appendix D.

### **Construct of the Economic Impact Model**

The CBER uses the IMPLAN<sup>©</sup> regional economic impact software<sup>2</sup> to construct this analysis. IMPLAN<sup>©</sup> uses social accounting matrices to analyze the relationship between industries and socio-economic characteristics of the local economy. As a result, income, output and employment are estimated. Results are represented by the direct, indirect and induced effect on the economy, as determined by the model. The IMPLAN<sup>©</sup> software estimates the spillover effects of additional business (indirect) and household (induced) spending that occurs from the direct spending of establishments located on the former mine sites as they demand labor and local goods and services.

To establish the IMPLAN<sup>©</sup> model, the CBER assigns a sector to each business identified from the OCCD research. FTEs calculated for each business are then aggregated by sector and imputed into the software. Due to the classification of a number of positions in Region III, an additional set of assumptions are made pertaining to military training facilities in this area. The estimated impact of employees in these positions is calculated using prior research conducted by the CBER that estimates spending by these facilities in parts (for example, through salaries, business services, lodging, supplies, etc.) rather than as an industry. These estimates are included in the model.

### **Discussion of Results**

The direct, indirect and induced effects of each region are computed for four values:

- Full-time equivalent jobs
- Labor income
- Total value added
- Total output.

Employment estimates provided by the model are representative of FTEs sustained year-to-year as a result of the business development and include both full- and part-time positions. It is

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<sup>2</sup> IMPLAN<sup>©</sup> stands for IMPact analysis for PLANning. For more information, please visit the MIG IMPLAN website at <http://implan.com/v4/index.php>.

important to note that these jobs are not created every year. Labor income, total value added and total output estimates are represented on an annual bases.

The outputs for each region are provided, followed by a summation of the three regions for the total estimated impact of business development on post-mined lands.

### **Region I Output**

As a result of the model, it is estimated that more than 3,600 jobs total are sustained due to economic development on post-mined lands (see Table 1). Most of these jobs are direct (approximately 2,800) and the remaining are attributed to the indirect and induced effects. An estimated \$136.7 million in labor income and \$193.4 million in total value added are created annually. Total output for Region I is estimated to be \$314.6 million each year.

**Table 1 Region I Economic Impact Output Table**

<b>Impact Type</b>	<b>Employment</b>	<b>Labor Income</b>	<b>Total Value Added</b>	<b>Output</b>
<b>Direct Effect</b>	2,820	\$108,052,479	\$143,239,378	\$228,819,168
<b>Indirect Effect</b>	276	\$10,279,374	\$17,851,159	\$30,836,572
<b>Induced Effect</b>	533	\$18,342,874	\$32,335,146	\$54,963,895
<b>Total Effect</b>	3,629	\$136,674,728	\$193,425,685	\$314,619,635

### **Region II Output**

Total employment as a result of business development on post-mined lands in Region II is estimated to be nearly 12,400 jobs sustained (see Table 2). Approximately \$638.6 million in labor income and \$882 million in total value added is created each year. Total output is estimated to exceed \$1.2 billion in this Region annually.

**Table 2 Region II Economic Impact Output Table**

<b>Impact Type</b>	<b>Employment</b>	<b>Labor Income</b>	<b>Total Value Added</b>	<b>Output</b>
<b>Direct Effect</b>	8,985	\$521,112,741	\$673,924,606	\$888,307,772
<b>Indirect Effect</b>	516	\$21,078,926	\$33,062,193	\$63,488,318
<b>Induced Effect</b>	2,890	\$96,359,694	\$175,061,645	\$286,626,934
<b>Total Effect</b>	12,391	\$638,551,363	\$882,048,444	\$1,238,423,025

### **Region III Output**

In Region III, total employment sustained as a result of this study is estimated to be 3,700 jobs (see Table 3). An excess of \$174.1 million in labor income and \$237.1 million in total value added, approximately, are created every year. Total output estimated in the model equaled \$372.6 million annually.

**Table 3 Region III Economic Impact Output Table**

<b>Impact Type</b>	<b>Employment</b>	<b>Labor Income</b>	<b>Total Value Added</b>	<b>Output</b>
<b>Direct Effect</b>	2,604	\$132,768,757	\$166,237,605	\$250,813,197
<b>Indirect Effect</b>	289	\$13,070,833	\$19,886,497	\$38,623,839
<b>Induced Effect</b>	776	\$28,308,416	\$51,037,784	\$83,144,409
<b>Total Effect</b>	3,670	\$174,148,006	\$237,161,886	\$372,581,445

### **Total Output**

The three sets of results—one for each region—are summed to determine the conservative estimate of employment on post-mined lands (see Table 4). An estimated 19,690 jobs have been sustained through employment on post-mined lands. The majority of those (nearly 14,500 jobs) are directly influenced as a result of this analysis. Overall, an excess of \$949 million in labor income are added to the economy each year. Approximately \$1.3 billion is created each year in total value added, and total output is estimated to be \$1.9 billion annually.

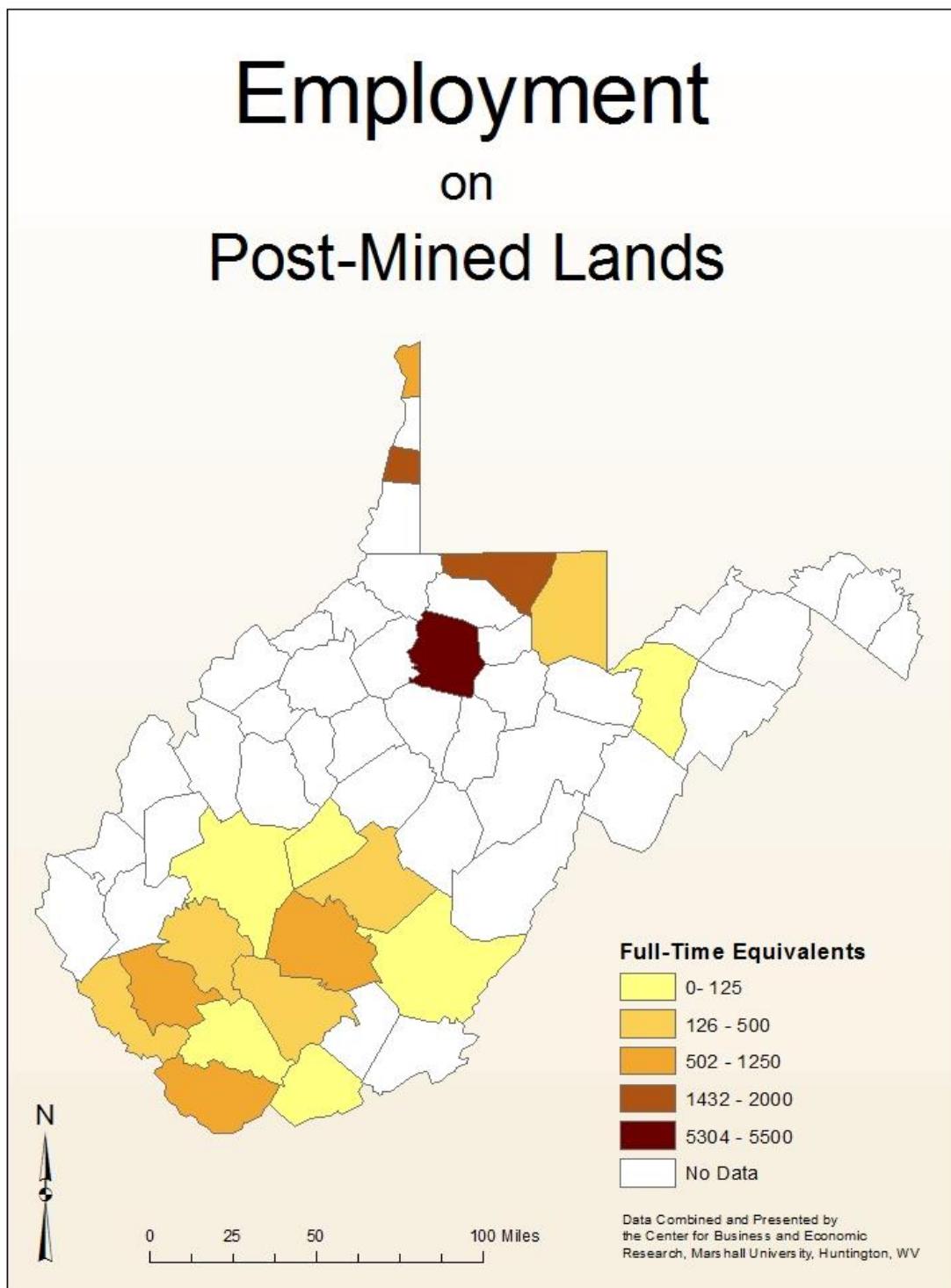
**Table 4 Overall Economic Impact Output Table**

<b>Impact Type</b>	<b>Employment</b>	<b>Labor Income</b>	<b>Total Value Added</b>	<b>Output</b>
<b>Direct Effect</b>	14,410	\$761,933,978	\$983,401,589	\$1,367,940,138
<b>Indirect Effect</b>	1,082	\$44,429,135	\$70,799,850	\$132,948,729
<b>Induced Effect</b>	4,199	\$143,010,985	\$258,434,577	\$424,735,240
<b>Total Effect</b>	19,690	\$949,374,098	\$1,312,636,016	\$1,925,624,107

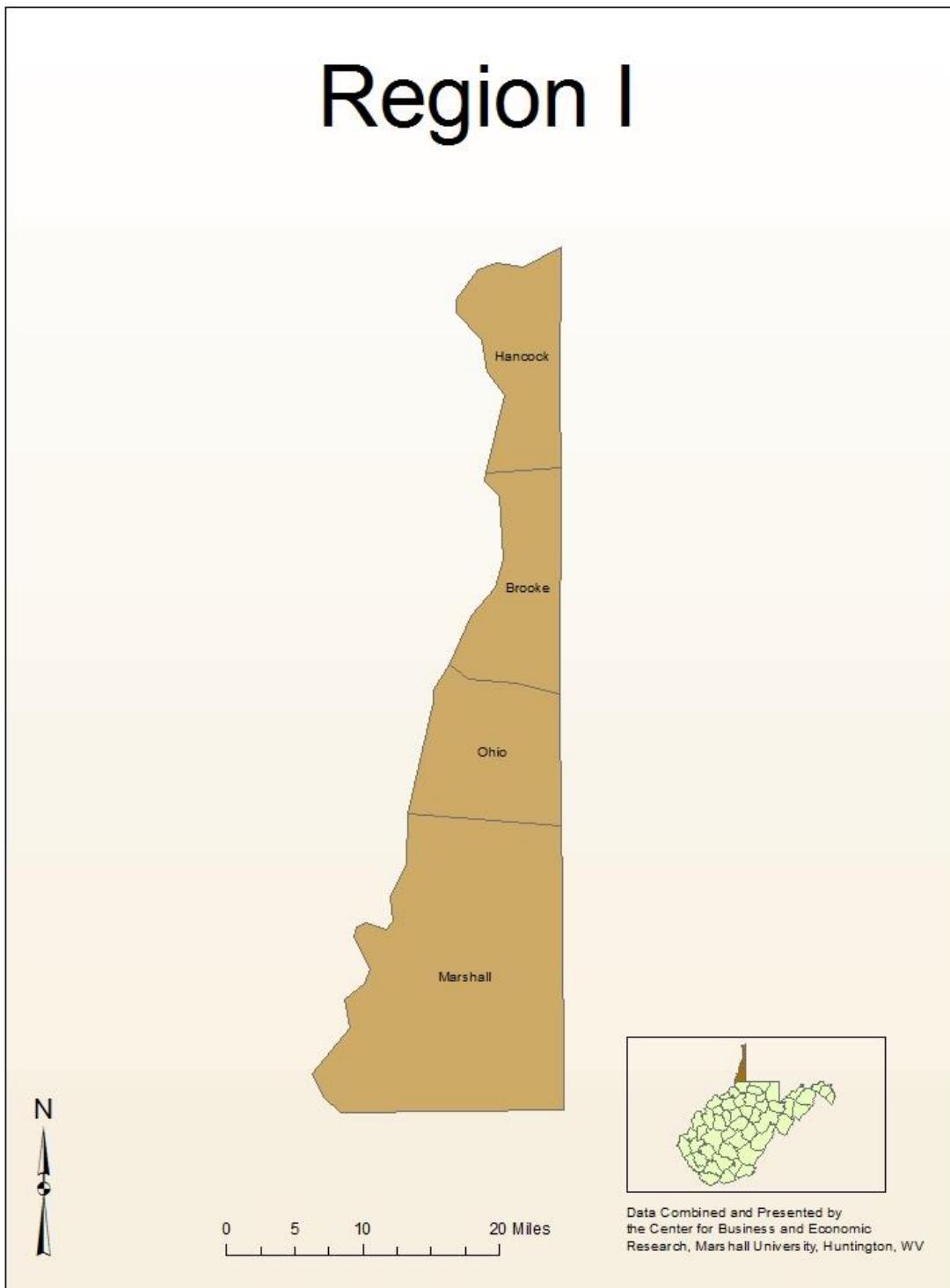
### **Summary**

It is apparent from the results of this research that constructing business establishments on mine land after mining has ceased has a profound positive impact on the economy through the number and type of jobs created. As post-mining development continues, further study of these scenarios—particularly to a statewide level, if possible—could provide additional insight into the economic impact potential.

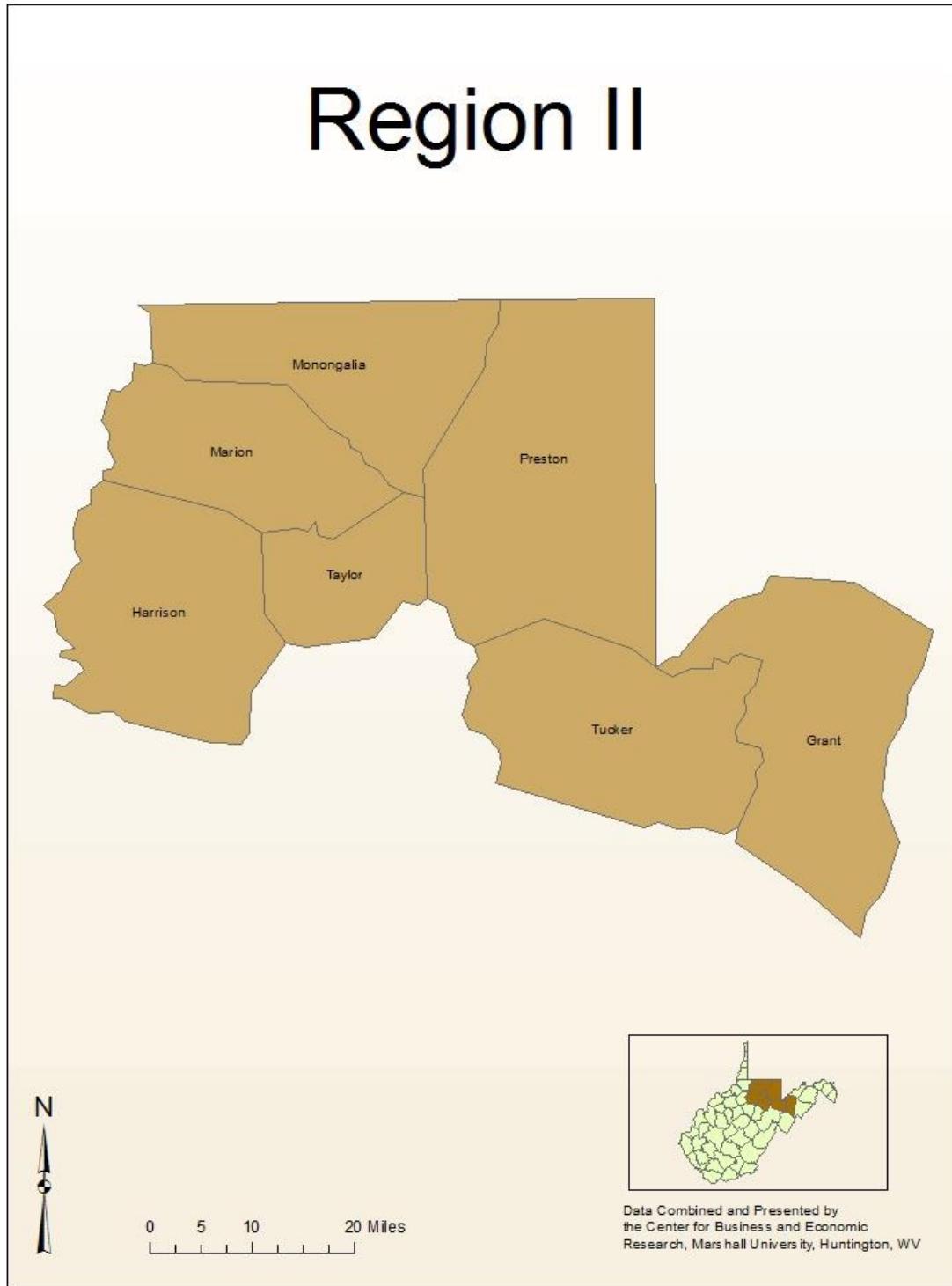
## Appendix A Employment on Post-Mined Lands



## Appendix B Region I Counties



## Appendix C Region II Counties



## Appendix D Region III Counties

