

Executive Summary

Introduction and Motivation

Historically, the southwestern quarter of West Virginia has been heavily dependent on the mining, preparation, and transport of coal as a basis of economic activity. In recent years, this dependence has been marginally reduced by laudable efforts to diversify the economies of some counties, within the overall region. Nonetheless, the sustained production of coal is still of tremendous importance to regional economics and the commercial vitality of the State as a whole. Very few economic relationships are, however, static. Changing conditions in the markets in which West Virginia coal is bought and sold, combined with increased concerns regarding the environmental effects of mountaintop mining, may lead to significant reductions in the quantity of coal produced in southwestern West Virginia. These reductions will, in turn, have pronounced and predictable impacts on the economies of coal producing counties.

The current analysis first develops a range of scenarios that reasonably captures foreseeable changes in coal production within the region. The study next assesses the economic impacts under each scenario in order to provide policy-makers with the information necessary to cope with the economic, demographic, and governmental challenges that are likely to stem from reduced coal mining activity.

To be clear, the current study *is not* a benefit-cost analysis that comprehensively evaluates the aggregate, State-wide (or even national) benefits of any particular policy, nor is it long-run in nature. Instead, the analysis presented here is offered as a short-run planning tool, developed with the expectation that the immediate economic consequences and resulting needs of reduced coal production are likely to fall most heavily on a relatively small number of West Virginians who live and work in the coal field region.

The Study Region, Analytical Methodology, and Predicted Outcomes

The study region is comprised of nine southwestern West Virginia counties: Boone, Fayette, Kanawha, Logan, McDowell, Mingo, Nicholas, Raleigh, and Wyoming. Demographic and economic statistics summarizing conditions within these counties are provided in Table E.1. Further information is provided in Chapter 2.

After defining the study region, the next analytical step involved forecasting coal production within each study region county under what are viewed as base-line conditions. This process is described at length in Chapter 4.

Table E.1

Study Area County	1997 Population	1997 Per Capita Income	1997 Full and Part Time Employment
Boone	26,347	\$17,735	9,436
Fayette	48,566	15,961	16,540
Kanawha	203,195	24,489	134,345
Lincoln	22,165	12,860	4,514
McDowell	30,558	13,482	7,213
Mingo	32,475	15,923	11,189
Nicholas	27,580	14,743	10,508
Raleigh	78,970	18,421	36,612
Wyoming	27,662	13,816	7,214

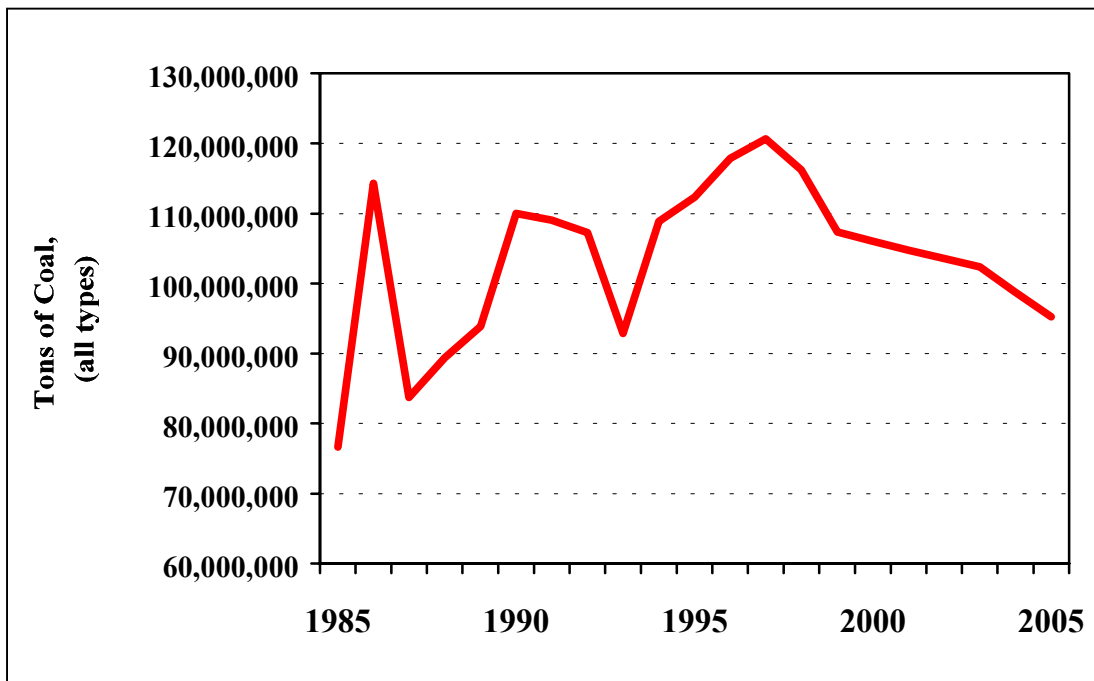
This base-line scenario does not simply rely on historical production levels in order to produce estimates of future economic activity. To the contrary, the base-line forecast specifically accounts for a number of economic factors that are currently affecting the market for study region coal. These include:

- The degree to which more stringent clean air standards are leading electricity producers to substitute natural gas and western coal for coal mined within the study region.
- Increased international competition from both Columbia and Australia that is displacing West Virginia coal in both international and even domestic markets.
- The probable impacts of electric utility restructuring on the demand for study region coal.

The aggregate 5-year base-line forecast for the study region is depicted graphically in Figure E.1.¹ The baseline forecast predicts a roughly 7.1 percent decline in coal production in the study region. This is the expected change in coal production absent any additional regulatory changes.

Next, the analysis was modified to predict the county-specific changes in coal production that may be expected if the Haden decision regarding the disposal of the overburden.² The study treats the potential impacts of this legal ruling under two differing scenarios. Under the first of these, those mines that are currently permitted to engage in valley fills would be allowed to do so until existing permits expire.

**Figure E.1
Baseline Forecast**



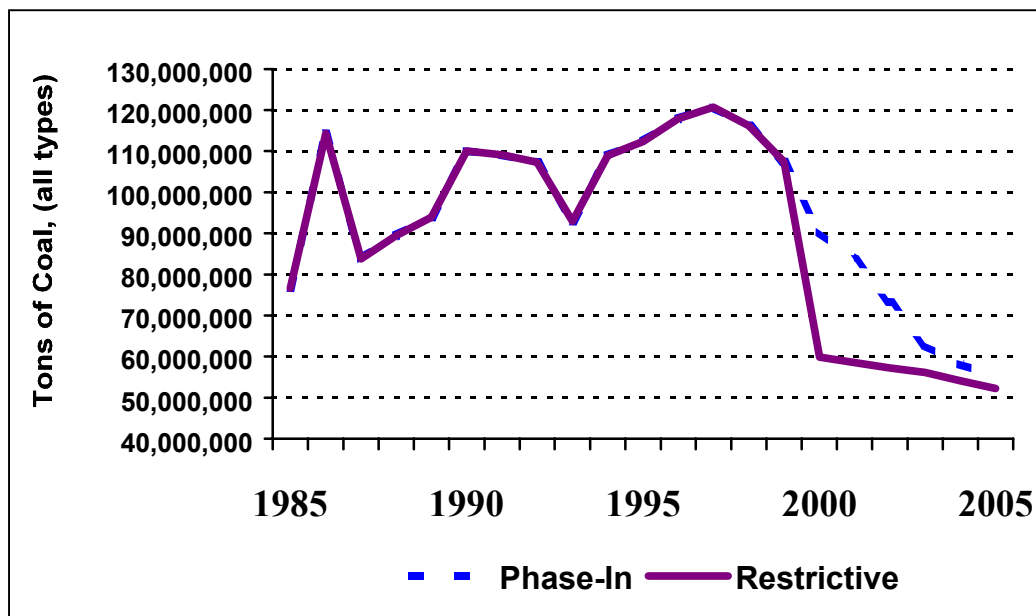
¹ The forecasting model is discussed at length in Chapter 4 and Appendix B. Within-sample forecast suggest that the model is able to predict aggregate regional production with little more than 2% error.

² Patricia Bragg, et al, Plaintiffs, vs. Colonel Dana Robertson, et al, Defendants. Civil Action 2:98-0636, U.S. District Court for Southern West Virginia, Charleston Division. This decision, currently under review at the Fourth U.S. District Court of Appeals, interprets the Clean Water Act to prohibit the use of valley fills that disturb any segment of a full or intermittent stream.

However, no additional valley fill permits would be issued.³ The second scenario would eliminate all mountaintop operations immediately if the Haden decision is upheld. While this latter scenario may seem extreme, it represents a “worst case” outcome and, therefore, is useful in bounding the economic potential impacts of reduced surface mining.⁴ The most likely results of the Haden decision lie between the base case and the worse case of immediate cessation. Predicted regional coal production under the two Haden scenarios are combined with the baseline forecast in Figure E.2.

The final analytical step involves converting the predicted reductions in coal production into more general economic outcomes for each of the study region counties. First-year impacts on employment, incomes, and aggregate economic activities are summarized for the study region in Table E.2.⁵

**Figure E.2
Simulations**



³ For economic reasons discussed within Chapter 3, we have operated under the assumption that coal producers would not seek permits for the measurably smaller mountaintop mining operations that may be permissible under the Haden ruling.

⁴ Importantly, the cost complementarities that exist in the preparation and transportation of combined surface and underground mining outputs are captured within the forecasts. Thus, reductions in surface mining also decrease underground quantities by increasing the cost of underground mining.

⁵ Economic impacts were generated through the application of regional simulation software developed by IMPLAN, Inc. A full range of county-specific economic profiles and predicted impacts are provided in Appendix D.

Table E.2

Predicted Changes	Baseline Forecast	Gradual Implementation of Haden Ruling	Immediate Cessation of Mountaintop Mining
Regional Employment	-1,646 (-.8%)	-3,575 (-1.8%)	-10,632 (-5.3%)
Regional Incomes	-\$58 M (-1.1%)	-\$124 M (-2.3%)	-\$281 M (-5.3%)
Aggregate Regional Economic Activity	-\$264 M (-1.2%)	-\$620 M (-2.9%)	-\$1,765 M (-8.1%)

Predicted Changes	Boone County			Fayette County		
	Baseline	Phase-In	Restrictive	Baseline	Phase-In	Restrictive
County Employment	-85	-255	-1716	1	-256	-984
County Incomes (in millions)	-\$3.7	-\$7.4	-\$73.7	\$0.1	-\$8.7	-\$33.1
Aggregate County Economic Activity (in millions)	-\$16.4	-\$96.5	-\$330.2	\$0.2	-\$40.8	-\$158.8
	Kanawha County			Logan County		
	Baseline	Phase-In	Restrictive	Baseline	Phase-In	Restrictive
County Employment	9	-1033	-3088	-727	-893	-1896
County Incomes (in millions)	\$0.4	-\$37.3	-\$111.4	-\$26.7	-\$32.9	-\$69.7
Aggregate County Economic Activity (in millions)	\$1.6	-\$0.2	-\$480.4	-\$116.4	-\$143.2	-\$303.7
	McDowell County			Mingo County		
	Baseline	Phase-In	Restrictive	Baseline	Phase-In	Restrictive
County Employment	-26	-58	-253	-176	-295	-1004
County Incomes (in millions)	-\$0.9	-\$1.8	-\$8.3	-\$7.0	-\$11.7	-\$39.7
Aggregate County Economic Activity (in millions)	-\$4.4	-\$9.8	-\$42.6	-\$32.6	-\$54.2	-\$185.1
	Nicholas County			Raleigh County		
	Baseline	Phase-In	Restrictive	Baseline	Phase-In	Restrictive
County Employment	-627	-662	-861	69	45	-106
County Incomes (in millions)	-\$19.5	-\$20.2	-\$26.3	\$2.2	\$1.4	-\$3.4
Aggregate County Economic Activity (in millions)	-\$90.9	-\$90.9	-\$118.5	\$9.5	\$6.0	-\$14.7
	Wyoming County					
	Baseline	Phase-In	Restrictive			
County Employment	-84	-168	-724			
County Incomes (in millions)	-\$3.1	-\$6.2	-\$26.8			
Aggregate County Economic Activity (in millions)	-\$15.0	-\$30.4	-\$131.5			

There are several important points to be noted in connection with these results. First, even under the baseline forecast, the competitive forces currently impacting markets for study region coal are predicted to lead to reduced coal industry employment. This outcome is consistent with recent trends that have witnessed falling industry employment for the last several years. It also suggests that, even under the best possible circumstances, continued reliance on coal production as a base of economic activity may generate economic hardships that require a public-policy response.

Secondly, the impacts of the more modest Haden scenario are pronounced. Even if current permits remain in force, the ruling is predicted to more than double the anticipated declines in study region employment. Moreover, if mountaintop mining is curtailed immediately and entirely as a result of the Haden decision, the associated impacts will be devastating to many of the study region counties. In aggregate, the more than 10,500 predicted job losses represents a 5.3% decline regional employment.⁶ However, within the most coal-dependent counties, the predicted impacts of curtailing mountaintop mining are much more severe. For example, in Logan County the nearly 1,900 job losses represent more than 12% of total current employment. In Boone County the predicted 1,700 job losses amounts to over 18% of total employment.

Finally, the economic impact results are based on changing coal production in the *first* forecast year. Thus, these predictions do not reflect the full magnitude of the economic changes that may be expected over the long-run. Instead, they capture the most immediate impacts on the most vulnerable segment of the State's population. The compounded impact of reduced coal production over a multi-year period is likely to generate more extreme results that will almost certainly impact every West Virginian.

⁶ The reader will recall that the study region includes Kanawha County in which many of the estimated 135,000 jobs are largely insulated from fluctuations in coal-related economic activity.

Conclusions

Again, the analysis described within the remainder of this document is, by no means comprehensive. By design, it explicitly ignores the external costs associated with various forms of coal mining. The current study is also short-run in nature. Differences in how competing policy options may affect the *long-run* economic well-being of the study region are not considered. Finally, the analysis presented here focuses entirely on nine coal producing counties rather than on the State as a whole.

Importantly, however, none of these qualifications negate the value of the information developed within this investigation. To the contrary, we believe the study answers a very important question – how will *foreseeable changes* in regional coal production affect the economic lives of those who live and work in the coal field region *in the near term*. Appropriately formed public policy may rest on the outcome of broad-based, long-run benefit-cost analyses. But it is the short-run impacts of these policies on a localized constituency that is likely to pose the greatest challenge for area residents, business leaders, and policy-makers. Long-run outcomes are much more easily planned for than immediate economic distress.

Unfortunately, some level of distress appears inevitable. Even if the Haden decision is not upheld, market pressures attributable to increased international competition, more stringent air quality standards, and electric utility restructuring are likely to yield reductions in regional coal production and accelerating reductions in coal-related employment. This outcome may be reversed at some point in the future, but in the near-term, the vitality of the region's coal production is highly suspect. If the Haden ruling is upheld, distress may give way to crisis in the most coal-dependent counties and the region as a whole will be noticeably impacted.

Finally, while the analysis described here depicts probable impacts on employment, incomes, and aggregate economic activity, the economic and non-economic effects of reduced coal production extend well beyond these outcome measures. Reduced economic activity diminishes the ability of State and local governments to develop revenues at a time when demands on public services may be measurably increased. Certainly, in the long-run, these decreased tax revenues may be partially balanced by out-migration and a reduction in the number of residents requiring government services, but in the short-run, government's ability to cope with the effects of economic distress is likely to be constrained by the same economic conditions that heighten needs.