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Economic Impact of Coal Mine Closures in Appalachian Ohio

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Introduction

At the start of October 2018, the AEP Conesville coal-fired power plant announced its closure in May 2020. The impact of this closure was not limited to direct layoffs of 165 employees but felt throughout the region in terms of losses in indirect impacts to the supply chain and induced impacts of less household spending. Specifically, CCU Coal and Construction announced the following year in September 2019 plans to lay off 205 workers across the Appalachian Ohio region in a WARN Notice to the State of Ohio (ODJFS, 2019). These jobs losses were directly attributable to the declining demand for coal following the closure of the AEP Conesville plant in Coshocton County, Ohio (Williams and Burger, 2019).

The Voinovich School of Leadership and Public Service received two US Economic Development Administration (EDA) Assistance to Coal Communities (ACC) grants following the closures of coal-fired power plants Appalachian Ohio. The first project, The BOBCAT Network, was funded after the closure of two Dayton Power and Light plant closures in Adams County. The second project, RISE Ohio, was funded after the closure of the AEP plant in Conesville. Both projects aimed to assist the communities and larger region transition through the decline of the coal economy. The projects funded research into possible job transitions, identifying new development project to diversify the economy, recovery coordinators for most heavily impacted areas, and much more. This report specifically builds upon the RISE Ohio project by examining the impact of the layoffs from CCU Coal and Construction, LLC that resulted from the Conesville closure that was the impetus for the project.

Coal Economy Decline

The RISE Ohio project covered 18 counties in Appalachian Ohio. These counties make up two EDA Economic Development Districts (EDDs). Additionally, all but one of the layoffs from the CCU Coal and Construction, LLC occurred within these two EDDs:

> Buckeye Hills Regional Council (BHRC): Athens, Hocking, Meigs, Monroe, Morgan, Noble, Perry and Washington Counties

Ohio Mid-Eastern Governments Association (OMEGA): Belmont, Carroll, Columbiana, Coshocton, Guernsey, Harrison, Holmes, Jefferson, Muskingum, and Tuscarawas Counties

Between 2006 and 2018, the 18 Appalachian Ohio counties mentioned above lost 1,166 coal mining jobs[1]. Additionally, the state of Ohio lost 1,469 jobs in the fossil fuel electric power generation industry during this time[2].

The decline of the coal economy, including coal mining, is well documented in the academic literature. Our aim is not to revisit this extensive body of work, but rather to situate the current closure within its broader context, particularly in Appalachia. As Betz et al. (2015) observe, Appalachia's share of coal production has fallen since the 1990s, driven by several factors—including the Clean Air Act of 1990, which favored low-sulfur coal from the Western U.S., and the subsequent rise of natural gas as a dominant source of electricity. Nationally, the retirement of coal-fired power plants and the resulting decline in coal demand have spurred numerous studies on employment and wage impacts (Pham et al., 2025).

While this economic shift poses serious local and regional challenges, a parallel body of research has examined the broader negative impacts of coal mining on health and well-being. Living near coal mining operations has been linked to lower in-migration rates due to coal dust (Cebula and Duquette, 2022), elevated mortality rates (Ghosh and Cebula, 2020), and a range of diseases (Cortes-Ramirez, et. al, 2018). We acknowledge these long-term effects, which lie beyond the scope of the short-term employment-focused models used in this study.

Economic Impact

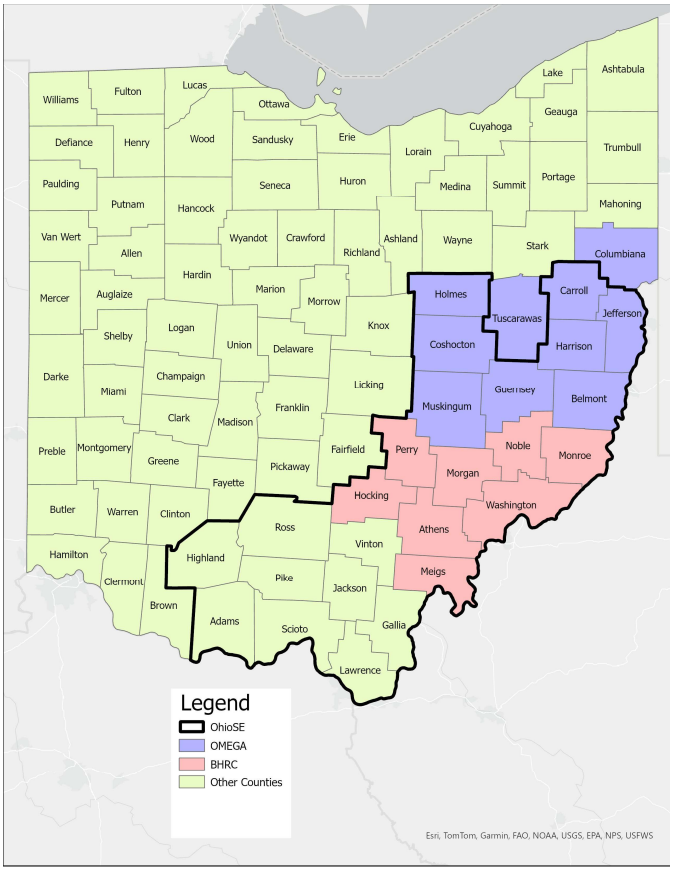
Input-output analysis, especially IMPLAN, is commonly used to assess the economic impact of exogenous shocks on an economy, such as the close of a major employment facility. In the academic literature, IMPLAN has been used to estimate the economic impact of coal mining

[1] This information is available through the U.S. Energy Information Administration (EIA) and the U.S. Mine Safety and Health Administration.
[2] This information is available through the Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW)

(Considine, 2024), coal-fired power plants (Jolley, et al, 2019), and clean coal energy generation (Altman and Hunter, 2015).

This analysis follows the best practice guidelines outlined by Clouse et al. (2023), which recommend using the lowest level of a "functional economy" and employing multi-regional input-output (MRIO) analysis to minimize aggregation bias. Three economic impact models were constructed to reflect different geographic boundaries aligned with political and organizational structures: (1) a base model focused on eight counties affected by mine closures (minus Jackson County), (2) an expanded model based on two federally designated Economic Development Districts: Buckeye Hills Regional Council (BHRC) and Ohio Mid-Eastern Governments Association (OMEGA), and (3) a broadest model including the JobsOhio (statewide economic development organization) designated OhioSE region, along with Stark and Tuscarawas Counties. Figure 1 shows these geographies.

Figure 1: BHRC, OMEGA, and OhioSE regions



CCU Coal and Construction, LLC Layoffs

Model 1 estimates that the loss of 204 direct mining jobs leads to a total loss of 422 jobs (multiplier: 2.07). Model 2, which includes additional counties tied to federal economic development regions, estimates a slightly higher total job loss of 444 (multiplier: 2.18). Model 3, covering the largest area and including 205 direct job losses, results in 452 total job losses (multiplier: 2.21). Multipliers for labor income, value-added, and output were relatively consistent across models. Table 1 provides details associated with each model.

Table 1: CCU Coal and Construction Closure (2019 data and dollar year)

Model 1: MRIO 8 counties: Athens, Perry, Belmont, Harrison, Coshocton, Muskingum, Stark, and Tuscarawas

	Employment	Labor Income	Value Added	Output
Direct	-204	-$34,385,648	-$32,725,111	-$69,674,895
Indirect	-69	-$4,237,788	-$8,623,807	-$17,121,777
Induced	-149	-$5,616,772	-$11,450,167	-$20,377,351
Totals	-422	-$44,240,208	-$52,799,085	-$107,174,023
Multiplier	2.07	1.29	1.61	1.54

Model 2: MRIO using the BHRC and OMEGA plus Stark County

	Employment	Labor Income	Value Added	Output
Direct	-204	-$34,385,648	-$32,725,111	-$69,674,895
Indirect	-77	-$4,782,884	-$9,855,831	-$19,826,763
Induced	-163	-$6,101,308	-$12,430,276	-$22,154,175
Totals	-444	-$45,269,840	-$55,011,218	-$111,655,833
Multiplier	2.18	1.32	1.68	1.60

MRIO using the OhioSE plus Tuscarawas and Stark Counties

	Employment	Labor Income	Value Added	Output
Direct	-205	-$34,584,645	-$32,932,826	-$70,063,738
Indirect	-81	-$5,119,656	-$10,405,509	-$21,060,690
Induced	-166	-$6,264,837	-$12,722,787	-$22,646,787
Totals	-452	-$45,969,139	-$56,061,122	-$113,771,215
Multiplier	2.21	1.33	1.70	1.62

Findings

Model 1 found that for every 10 jobs lost directly from the CCU Coal and Construction, LLC layoffs, approximately another 10.7 jobs are lost in the counties the layoffs occurred in through indirect or induced impacts. Additionally, for every $1 of value added directly lost to the gross regional product, another 61¢ is lost to the regional economy through decreased indirect and induced impacts.

When we expand the MRIO region to include the remaining counties from the two EDDs, BHRC and OMEGA, we found in Model 2 that for every 10 jobs lost directly, another 11.8 jobs are lost in the region through indirect or induced impacts. Additionally, for every $1 of value added directly lost to the gross regional product, another 68¢ is lost to the regional economy through decreased indirect and induced impacts.

Likewise, when we further expanded the MRIO region to include the OhioSE region counties, we found in Model 3 2 that for every 10 jobs lost directly, another 12.1 jobs lost are lost in the region through indirect or induced impacts. Additionally, for every $1 of value added directly lost to the gross regional product, another 70¢ is lost to the regional economy through decreased indirect and induced impacts.

As the region of analysis expands, the opportunity for additional feedback increases due to additional areas included. Therefore, the above findings are expected: seeing slightly larger multiplier effects in larger regions of analysis. Likewise, best practices in economic impact modeling, as reflected in Model 1, recommend defining the smallest possible "functional economy" to ensure analytical precision. However, federal agencies and regional economic development organizations prefer (and might require) impact estimates aligned with designated administrative boundaries. Model 2 responds to this need by expanding the analysis to include two federally designated Economic Development Districts. Model 3 further broadens the scope to reflect how state-level stakeholders, such as JobsOhio, might assess impacts across the entire OhioSE region.

These variations highlight the importance of balancing methodological rigor with the practical and political realities of funding, governance, and regional planning.

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