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The Economic Anomaly of Mining—Great Wealth, High Wages, Declining Communities

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Mineral extraction activities pay among the highest wages available to blue collar workers, about twice the average. In New Mexico in 2000, mineral extraction jobs paid \$50,000 per year whereas the average wage and salary job paid \$28,000. Given these high wages, one would expect communities that rely heavily on mineral extraction to be unusually prosperous. That, in general, is not the case. Across the United States, mining communities, instead, are noted for high levels of unemployment, slow rates of growth of income and employment, high poverty rates, and stagnant or declining populations. In fact, our historic mining regions have become synonymous with persistent poverty, not prosperity: Appalachia (coal), the Ozarks (lead), and the Four Corners (coal) areas are the most prominent of these. Federal efforts have focused considerable resources at overcoming the poverty and unemployment found in these historic mining districts. In addition, the Iron Range in Minnesota, the copper towns of New Mexico, Michigan, Montana, and Arizona, the Silver Valley of Idaho, the gold mining towns of Lead and Deadwood, South Dakota, etc. are also not prosperous, vital communities. Over the last several decades some of these areas have begun to recover as a result of the immigration of new, relatively footloose residents and economic activities, but that recovery is entirely non-mining based.

The dramatic contrast between the wealth created and the high wages paid in mining and the poor economic performance of mining communities needs to be understood before expanded mineral extraction activities can be safely promoted as a local economic development strategy. This paper looks at the actual performance of mineral communities over the last quarter century and then turns to an explanation for that relatively poor performance.

CONTEMPORARY AMERICAN MINING COMMUNITIES

In order to explore the contemporary local impact of reliance on mining in the United States, we studied the economic performance of all U.S. counties where mining (excluding oil and gas extraction) was the

source of 20 percent or more of labor earnings between 1970 and 2000. There are about one hundred such counties that could be identified out of the 3,100 counties in the U.S. Data disclosure problems prevented the identification of some mine-dependent counties.

The U.S. mining-dependent counties are spread out over half of the American states but are geographically clustered in the Appalachian (Pennsylvania, West Virginia, Tennessee, Kentucky, and Virginia) and Mountain West states. The century-old copper mines of Upper Michigan, Montana, Utah, Arizona, and New Mexico are included, as are the new gold mines in Nevada. The older coal mines in southern regions of the Great Lakes states (Illinois, Indiana, and Ohio) are included, as are the new open pit coal mines of Wyoming, Montana, Utah, Colorado, and New Mexico. The lead mines of the Ozarks in Missouri, the precious metal mines in the Black Hills of South Dakota and the Silver Valley of Idaho, and the iron fields of Minnesota are also included.

The question we sought to answer was whether this high degree of reliance on mining allowed these counties to outperform those counties that did not rely heavily on mining. For those counties that were dependent on mining in the 1970s, we looked at their economic performance in the following decades: 1980–1990, 1990–2000, as well as the two decade period, 1980–2000. For those counties that were dependent on mining in the 1980s, we looked at their economic performance in the 1990–2000 period. Economic performance was measured in terms of the growth in the aggregate labor earnings of residents of the county, per capita income, and population. In addition, the level of per capita income at the beginning and end of the periods was analyzed.

The decade of the 1980s was not a good one for mining-dependent counties. Labor earnings in those counties grew much more slowly than in other counties, almost 60 percent slower. During the 1990s earnings were still growing more slowly in mining-dependent counties, 25–30 percent slower. For the entire period 1980–2000, aggregate earnings in mining-dependent counties grew at only half the rate of other American counties.

Per capita income also grew more slowly during the 1980s in mining-dependent counties, about 30 percent slower. During the 1990s per capita income grew at about the same rate as in the rest of the nation, but for the entire period, 1980–2000, per capita income grew about 25 percent slower. The *level* of per capita income was also lower in the mining-dependent counties and, given that slower growth, the gap increased relative to the rest of the nation. In 2000 the income available to support each person in a mining-dependent county was about \$9,500 per year below what was available, on average, in other counties.

Most mining operations are located in non-metropolitan areas where average incomes, in general, are lower. If the mining-dependent counties are compared only to other non-metropolitan areas, it is still true that the mining-dependent counties have lower per capita incomes and that they have lost ground relative to other non-metropolitan counties over the last three decades. This is also true for most mining regions even if the mining-dependent counties are compared only with the other non-metropolitan counties in the

same state. Of the twenty five states with mining-dependent counties, only four (Montana, Minnesota, Michigan, and Georgia) had per capita incomes in the mining-dependent counties above the state's non-metropolitan average, and those incomes were only 3–11 percent higher. Of those twenty five states with mining-dependent counties, nineteen saw per capita income in the mining-dependent counties deteriorate relative to the state non-metropolitan average between 1980 and 2000.

Given this poor economic performance in U.S. mining-dependent counties, it is not surprising that population growth in these counties was negative during the 1980s and significantly slower than in the rest of the nation in the 1990s. For the 1980–2000 period, population growth in mining-dependent counties was only one-fourth to one-eighth of what was found on average in the other U.S. counties.

It is clear that over the last several decades, dependence on mining did not allow U.S. communities to perform better than other American communities. In fact, mining-dependent communities lagged signifi-

	LABOR EARNINGS			PER CAPITA INCOME		
	1980–1990	1990–2000	1980–2000	1980–90	1990–2000	1980–2000
Mining-dependent counties in 1970s	0.41	0.75	0.49	0.71	0.97	0.77
Mining-dependent counties in 1980s	0.41	0.69	0.46	0.72	0.95	0.76

Source: REIS CD-ROM; author's calculations

Growth in labor earnings and per capita income, mining-dependent relative to other U.S. counties.

	POPULATION GROWTH			LEVEL OF PER CAPITA INCOME		
	1980–90	1990–2000	1980–2000	1980	1990	2000
Non-mine-dependent counties	4.5%	11.2%	18.1%	\$ 10,201	\$ 19,622	\$ 29,548
1970s mining-dependent	-3.0%	6.8%	4.6%	\$ 8,362	\$ 13,595	\$ 19,893
1980s mining-dependent	-3.8%	5.5%	2.2%	\$ 8,390	\$ 13,754	\$ 20,099
Difference: 1970 mining-dependent and other counties	-7.6%	-4.4%	-13.5%	\$ (1,839)	\$ (6,027)	\$ (9,655)
Difference: 1980 mining-dependent and other counties	-8.3%	-5.6%	-15.8%	\$ (1,813)	\$ (5,874)	\$ (9,457)

Source: REIS CD-ROM; author's calculations

Population growth and level of per capita income, mining-dependent and other U.S. counties.

cantly behind the average for the rest of the nation.

These are not new results. U.S. Department of Agriculture analyses have also pointed out the slower economic growth and lower per capita incomes in mining-dependent counties. In addition, a recent report by the U.S. Census Bureau providing *Profiles of Poor Counties* showed, when counties are classified by the type of industry that dominates the local area, mining counties had the highest poverty rates of any industrial group and that poverty rate increased systematically between 1989 and 1996.

Alabama	1.05
Arizona	2.64
Colorado	1.31
Illinois	1.50
Indiana	1.38
Kentucky	1.64
Montana	1.76
New Mexico	1.38
North Dakota	1.82
Ohio	1.75
Pennsylvania	1.44
Texas	1.23
Utah	1.73
Virginia	2.95
West Virginia	1.27
Wyoming	1.02
All U.S. coal counties	1.55

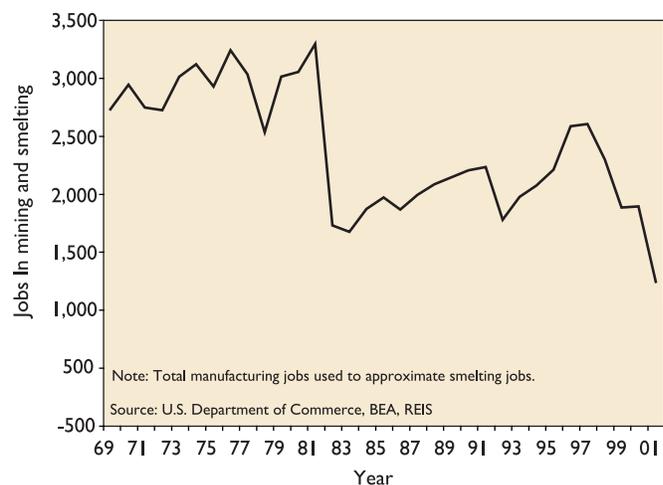
Source: U.S. Department of Labor; author's calculations

Ratio of the unemployment rates in U.S. coal counties to the statewide average unemployment rate, 1990–2000.

Unemployment is also higher in mining-dependent counties in the U.S. For instance, unemployment rates in coal-mining counties are significantly above the average unemployment rate in the state where the county is located. Averaged over the 1990–2000 period and across all coal-mining counties, the unemployment rate in those counties was 55 percent above the state average rates. For some states, such as Arizona and Virginia, the coal county unemployment rates are two to three times higher than the state unemployment rates. Given the ongoing job losses in most coal mining counties due largely to labor-displacing technological change, these high unemployment rates

might be expected. During the 1980s, for instance, the layoff rate in the mining industry was the highest of all the major industrial groups in the U.S., and the rate of job displacement in coal mining was much higher than in mining as a whole.

The important point to be drawn from all of these statistical results from an economic development perspective is that whatever might be said about the impact of mining on *national* economic development, in the U.S. these mining activities, in general, have not triggered sustained growth and development in the *local* regions where the mining took place. Closure of the mines often led to “ghost towns” and abandonment of the region. Where mining persisted over longer periods, it did not trigger a diversification of the economy. Instead, as labor-saving technologies reduced employment opportunities, the region around the mines became distressed with high unemployment and poverty rates. This was not just a historical problem associated with nineteenth-century mineral developments on the American frontier. Contemporary American counties that depend on mining continue to experience the same results, lagging the national economy.



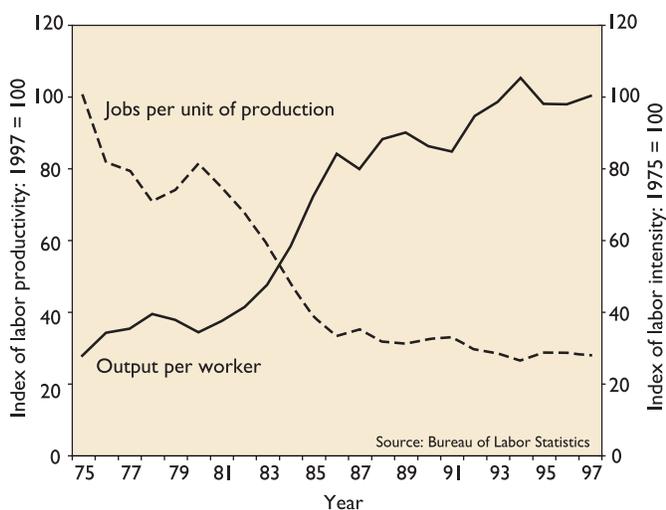
Mining and smelting employment, Grant County, New Mexico.

EXPLANATIONS FOR THE POOR ECONOMIC PERFORMANCE OF MINING COMMUNITIES

The explanation for this poor economic performance despite the local economy's specialization in a very high wage industry lies in the instability of employment and income associated with mineral development activity. As the experience of the Silver City area of Grant County, New Mexico, documents, mineral

development almost always has a boom-bust aspect to it that is tied to the wide fluctuations in world commodity prices. By 2001 almost two-thirds of the mining and smelting jobs that existed in 1981 in Grant County had disappeared. When mining-related jobs represent almost a third of all local jobs, such fluctuations in employment can have a devastating impact on the community.

In addition, technological change is continually reducing the number of jobs associated with any given level of mineral development. The productivity record, for instance, in copper mining over the last quarter century is indicative of the mining industry as a whole. In copper, output per worker has tripled.



Copper mining productivity and labor intensity.

This has helped copper mining companies control costs and remain competitive while processing lower and lower grade ores. The downside of this growth in labor productivity for workers and communities is that the labor required per unit of production has been cut to a third of what it otherwise would have been. Thus, even if production is stable, employment continues to fall. Only constantly expanding mineral development can maintain stable employment, and this is never possible over the long run. Another reason for declining employment and earnings in mining is that mineral deposits are always, ultimately, exhausted, and the industry has to shift to new geographic areas. In addition, because of the high profits that are often associated with extracting gifts of nature, there tends to be ongoing struggles between miners and mining companies over the sharing of those rents. This has led to often bitter and extended strikes and lockouts that have also taken their toll on

local communities, adding still another source of economic instability. Finally, mineral extraction tends to be land-intensive, imposing a disruptive footprint on the natural landscape and contributing to significant environmental degradation. This makes mining-dependent areas less attractive places to live, work, and do business, depressing economic diversification and development.

These well-known explanations for economic instability in mineral-dependent economies lead investors to be very cautious about the investments they make in areas dependent on mineral production. Since workers, residents, businesses, and local governments do not know how long the employment and payrolls will last, they reduce their risk by avoiding fixed investments that may be lost if the mineral industry enters a period of decline. As a result, mineral workers commute long distances to jobs, maintaining residences at some distance from the mineral development. Businesses are hesitant to develop local commercial infrastructure, and local governments are hesitant to finance public infrastructure with debt. The result is a less fully developed local economy and more income leakage out of the local economy. In short, excess dependence on mineral development tends to constrain local economic development, leading to the depressed economic conditions that have come to characterize many mining-dependent areas.

The policy implications of this description of the problem are straightforward. Continued dependence on one industry is probably not a good economic development strategy. Diversification away from heavy dependence on mining can reduce the vulnerability of a community to the instability associated with mining. This is not to say that mining has to be abandoned. Rather, other sectors of the economy need to grow in relative terms to provide productive balance to mining. In addition, attention to reducing and then repairing the environmental damage associated with mineral extraction is important in making the community attractive to non-mineral economic activities and supporting such diversification. All of that, of course, is very easy to say but difficult to implement. Understanding the source of the problem, however, is the crucial first step in developing a solution.