A More Holistic Economic Evaluation of Mining: Considering Benefits and Costs

Understanding the Impacts of Mining in the Western Lake Superior Region

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Why Is There Controversy over Sulfide Copper Mining?

- New High Paying Jobs
- New Income to Households and Governments
- Pure Benefits?
  - That is what “impact” analysis often suggests.
Why Are Mining Areas Not Uniformly Prosperous?

Many mining areas are synonymous with lagging economies and, even, persistent poverty and unemployment
- Appalachia, Ozarks, Four Corners
- Copper Towns of Butte, MT, Silver City, NM, Globe-Miami, AZ, the Upper Peninsula of MI.
- Iron Range, MN
- Uranium belts of New Mexico and Western Colorado
- Gold and Silver Mining Towns: Silver Valley, ID, and Lead and Deadwood, SD
## Economic Vitality in Mining Dependent Counties

### Ratios of Growth in Indicators of Economic Vitality

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<thead>
<tr>
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<tbody>
<tr>
<td>Personal Income</td>
<td>0.59</td>
<td>0.82</td>
<td>1.09</td>
<td>0.76</td>
</tr>
<tr>
<td>Population</td>
<td>-0.85</td>
<td>0.50</td>
<td>0.65</td>
<td>0.17</td>
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<tr>
<td>Per Capita Income</td>
<td>0.72</td>
<td>0.95</td>
<td>1.13</td>
<td>0.83</td>
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<tr>
<td>Earnings</td>
<td>0.41</td>
<td>0.69</td>
<td>1.13</td>
<td>0.54</td>
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### Level of Per Capita Income: Mining Dependent and Non-Mining Dependent Counties

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<tbody>
<tr>
<td>Mining-Dependent</td>
<td>$8,390</td>
<td>$13,754</td>
<td>$20,099</td>
<td>$30,240</td>
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<tr>
<td>Non-Mining Dependent</td>
<td>$10,201</td>
<td>$19,622</td>
<td>$29,548</td>
<td>$33,191</td>
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<tr>
<td>Difference</td>
<td>-$1,811</td>
<td>-$5,868</td>
<td>-$9,449</td>
<td>-$2,951</td>
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</tbody>
</table>

Source: US Dept. Comm., BEA, REIS Local Area Income, and author's calculations.

“Mining Dependent” = 20% or more of labor earnings are from mining (excluding oil and gas from “mining”)
Why Aren’t Mining Towns Prosperous?

1. The Instability/Volatility of Mining Jobs and Earnings
2. The Impact of Labor Displacing Technology
3. Heavy Environmental Damage: An Economic Problem
4. The Displacement of Other, More Sustainable, Economic Activity
Why Aren’t Mining Towns Prosperous?-1

- The Reliability and Stability of the Economic Benefits
  - Unstable, volatile mineral prices
  - Worldwide competition
  - Booms and and Busts
Changes in Real Copper Prices 1900-2011

Note That Recent Peak Copper Prices Were Not the First Time that Real Copper Prices Were in the $4.00/lb Range. Prices Regularly Fall after Reaching Peak Values.

Last Time Minnesota Considered Sulfide Cu Mining

Source: US Geological Survey: Copper Statistics
Why Aren’t Mining Towns Prosperous?-2

• The Deployment of Labor-Displacing Technology
  – Mining is one of the oldest human economic activities
  – That provides a long time to develop new technologies
  – One of the sources of high unemployment in mining areas
    • High wages + regular layoffs = workers remain in the local area hoping to be rehired
Production and Employment in US Copper Mining

US Primary Copper Production Was Approximately the Same at the Beginning and End of This Period: ~1.2 million metric tonnes

Economic Census: Copper & Nickel Mining, Various Years

36,400 jobs

Copper Production

Cu Mining Jobs

10,400 jobs

-71%
The Impact of Labor-Displacing Technology on Minnesota Iron Mining Jobs

- 20,000 jobs
- 490 Workers per Million Tons of Iron Ore
- 3,300 Jobs
- 80 Workers/Million Tons
- -84%
- One-Sixth of Workers
Why Aren’t Mining Area’s Prosperous?-3

• The Need to Account for the Costs Too
  – Mining is landscape intensive
    • Irreparable damage to land: open pits, waste dumps, settling ponds, etc.
    • Destruction of wetlands
    • Potential for near-permanent water pollution
    • Threats to the Lake Superior Region’s World Class Landscapes and Recreation Opportunities
  – This is not just an environmental problem. It is also an economic problem.
The Changing Economic Role of Natural Landscapes

Our Natural Landscapes

<table>
<thead>
<tr>
<th>Commercial Commodities</th>
<th>Environmental Services</th>
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</thead>
<tbody>
<tr>
<td>Timber</td>
<td>Non-Commercial Recreation</td>
</tr>
<tr>
<td>Minerals</td>
<td>Clean Water</td>
</tr>
<tr>
<td>Forage</td>
<td>Wildlife</td>
</tr>
<tr>
<td>Outfitting</td>
<td>Fisheries</td>
</tr>
<tr>
<td>Commercial Recreation</td>
<td>Scenic Beauty</td>
</tr>
<tr>
<td>&quot;Tourism&quot;</td>
<td>Air Quality</td>
</tr>
<tr>
<td></td>
<td>Open Space</td>
</tr>
</tbody>
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Impact on Local Economic Well Being

- Employment & Income in Mills, Mines, Resorts etc.
- Traditional Economic Base Expands Multiplier Impacts
- Additional Economic Activity

- Improved Quality of Life.
- Attract and Hold New Residents and Businesses
- Additional Economic Activity
The Lake Superior Region Has Long Experience with Mining and Its Impacts

- Consider the collapse of the iron and copper industries in the late 1970s and early 1980s
- What happened in the Lake Superior mining communities?
- Use St. Louis County, MN As an Example
  - The source of 75-80% of metal mining earnings in Minnesota
The Impact of Unstable Employment and Income in Mining

- Uncertainty about the level of employment and income.
- Reduced willingness to invest in homes, businesses, and government infrastructure:
  - Higher mine and household expenditures, tax payments, and demand for public services may be temporary.
  - Miners avoid risking the investment in a home near the mine: Live away from the mine and commute.
  - Mining wages leak out of the local economy
  - Under-Developed / “Run Down” Economy
A Framework for Weighing the Costs and Benefits of Copper Mining

- Carefully and critically evaluate the expected monetary consequences, both positive and negative.
- Carefully and critically evaluate the non-market environmental consequences.
- Consider requiring mitigation measures that maximize benefits and minimize costs.
- Make an informed judgment about whether the benefits justify the remaining, unavoidable costs.
Clearly We Need to Weigh Both Benefits and Costs

• Should not just display apparent spectacular positive “benefits.”
• Mining companies regularly weigh private benefits and costs and often decide not to mine.
  – That is why Minnesota’s known copper deposits have not been developed for over a century.
• The public and government agencies need to do the same thing
  – They, too, may rationally decide not to proceed with mining when the costs exceed the benefits.
Rejecting a Particular Mine Is Not Evidence of Being Anti-Mining

- Mining companies regularly reject proposed mineral developments because costs exceed revenue expectations.
- We will not have to go without copper if a particularly costly mine is rejected.
- We will turn to a less costly alternative. Hundreds of copper deposits are proposed for development around the world including across North America.
The Public Policy Challenge of the Proposed New Copper Mining

- How to support the ongoing revitalization of mining areas that was well underway when the current national economic meltdown struck?
- How to avoid stepping back onto the economic “roller coaster” that mining tends to create?
- How to avoid further damaging the natural environment of the Western Lake Superior Area and extending that damage to surrounding rivers, lakes, and wetlands?
- How to protect the water resources that are an important part of the current and future economic base of the Lake Superior region?
Thank You!

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