

The Boundary Waters Canoe Area....

Wealth Generator

"...there appears to be no scientific basis for accepting the widespread, 'obvious' assumption that mining will lead to economic improvement (Freudenberg and Wilson, 2002)."

"The wealth of the nation is its air, water, soil, forests, minerals, rivers, lakes, oceans, scenic beauty, wildlife habitats and biodiversity.... In short, that's all there is. That's the whole economy." – Senator Gaylord Nelson

Background

The debate over whether to allow sulfide mining near the Boundary Waters Canoe Area Wilderness turns, as these debates often do, on the question of how many jobs of which types will be created by the activity. What is often lost in the debate, however, is how many jobs and related economic activity would likely be destroyed by the activity.

Key points:

- The economy of the Boundary Waters Region has diversified away from an unhealthy dependence on boom-and-bust extractive industries.
- Key trends reflect the region's natural, recreational, and scenic attractiveness to retirees, vacationers, and workers of all ages.
- Development that threatens those amenities, by making the region less attractive, also threatens the stability and health of the region's established economy.

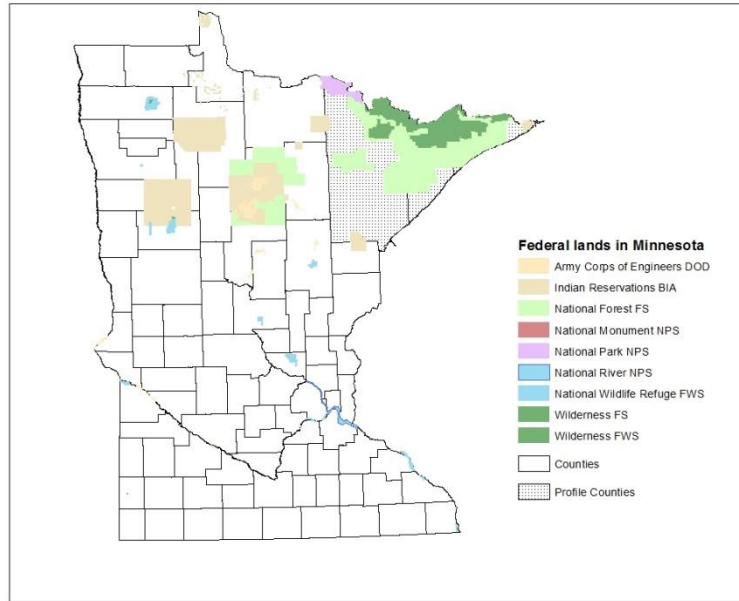
Northeastern Minnesota is rich in natural resources of many types, but the inescapable reality is that the exploitation of one type of resource – the nickel, copper and other ores lying under lands near the Boundary Waters – will degrade other resources, including water quality, fish and wildlife populations, scenic beauty, forests, and high quality recreational experiences, already on the surface. The jobs associated with these latter resources may be harder to see and some of them may not pay as well as some of the mining jobs. But unlike mining, the economic opportunities associated with a clean environment will stay around for many decades: they'll use the resource over and over without using it up and without fouling it for others.

A full accounting of the economic costs and benefits of the mining proposals must include an assessment of what is at stake if the foundation of the region's current economy – the water and air quality, recreational opportunities, scenic value, forested landscape, and other aspects of environmental quality are diminished by mining. The information below regarding the current makeup of the region's economy is a start at that accounting.

Trends in the Economy of the BWCA Region

- After a steep decline (corresponding to a decline in mining employment) in the 1980s, the population of the three-county region containing the Boundary Waters has rebounded slightly (by about 5,000).
- Employment and personal income, meanwhile, have increased steadily since the early 1980s.
- Most job and *labor* income growth has occurred in service industries (a broad category comprising health care, education, recreation and tourism, finance, and others).
 - Service industries now employ more than seven out of every ten workers in the region. Health care, retail trade, and accommodation and food services are the largest service industries, as measured by employment. (See Figures 4 and 5, below.)
- The region has also seen significant growth in *non-labor* income, especially investment income (dividends, interest, and rent), and age-related transfer payments, such as Social Security and Medicare.
- The population is aging (see Figure 2), with large increases in the portion of the population between the ages of 55 and 64 and large decreases in the 35-to-44 age range. (Such trends often indicate the attractiveness of an area to retirees.)

Figure 1: Public lands in Minnesota and the three-county Boundary Waters Region

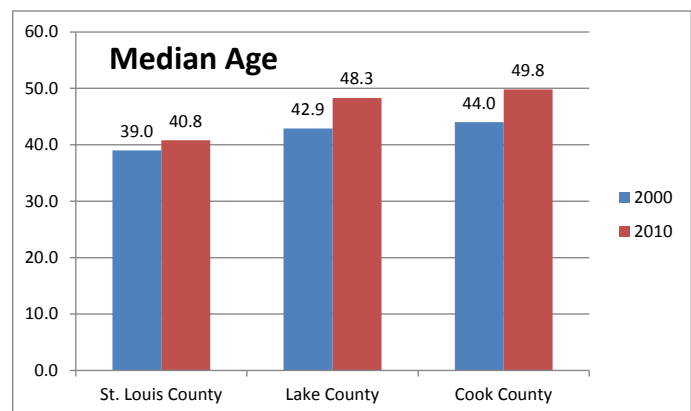


Natural Amenities and Economic Vitality

Many, if not all of these trends are consistent with the now-established “supply-side” theory of rural development summarized as “people follow amenities; and jobs follow people.” (See, for example, Florida (2000), and McGranahan, Wojan and Lambert (2010).) Rural areas do best when they have a combination of a high proportion of creative class workers, a rich entrepreneurial context, and high quality outdoor amenities like an abundance of conservation lands and the clean air, clear water, and recreational opportunities they afford (Florida, 2000; McGranahan, Wojan, & Lambert, 2010).

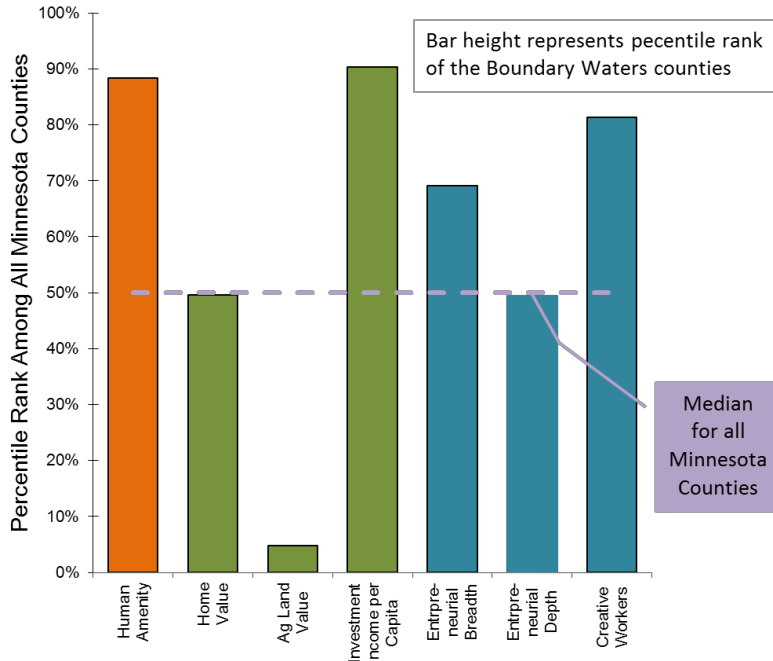
The Boundary Waters Canoe Area Wilderness and the clean water, scenic beauty, and recreational experiences enjoyed there

Figure 2: Median age is increasing in the Boundary Waters Region



provide that third critical component to a thriving rural economy. This trend is so strong that communities across the continent look to this region as an example of how to do economic development right – that is, how to take advantage of natural amenities without degrading them by overuse or destroying them through incompatible land uses and development.

Figure 3: Assets of the Boundary Waters Region



Based on indicators of “rural assets” developed by researchers at the Federal Reserve Bank of Kansas City, the Boundary Waters region also has many other key ingredients for resilience and success in the new economy (Center for the Study of Rural America, 2003). Figure 3 depicts the percentile rank of these three counties together, relative to all Minnesota counties¹. The three Boundary Waters counties out-perform most other counties in Minnesota by most of these measures.

Starting on the left, the “human amenity index” for the Boundary Waters region is higher than that of 90% of Minnesota counties. This aggregate quality of life index takes healthcare access, recreational and scenic resources, and the presences of other amenities into account. Next, in green, are three measures of wealth beyond that supplied by wages and salaries. Home values in the region are right in line with state averages, but agricultural land value is much lower. (This is the only measure by which the region falls below the 50th percentile.) Investment income per capita, on the other hand, is very high, exceeding the same measure for more than 90 percent of all Minnesota counties and perhaps indicating the attractiveness of the region to retirees.

Finally, the blue bars represent the capacity of the region to provide diverse employment opportunities. These rankings indicate the relative strength of the region in Entrepreneurial Breadth (the percentage of workers who are self-employed) and Entrepreneurial Depth (the share of those small businesses’ revenue that goes to the owners’ income). They show that Boundary Waters region is a relatively good place for small business start-ups and (at the 49th percentile) about as good at keeping those businesses viable as anywhere in the State. The region also has a very high ranking for Creative Workers, which is measured by the percentage of workers in creative professions where many new products and services originate.

Employment and Income

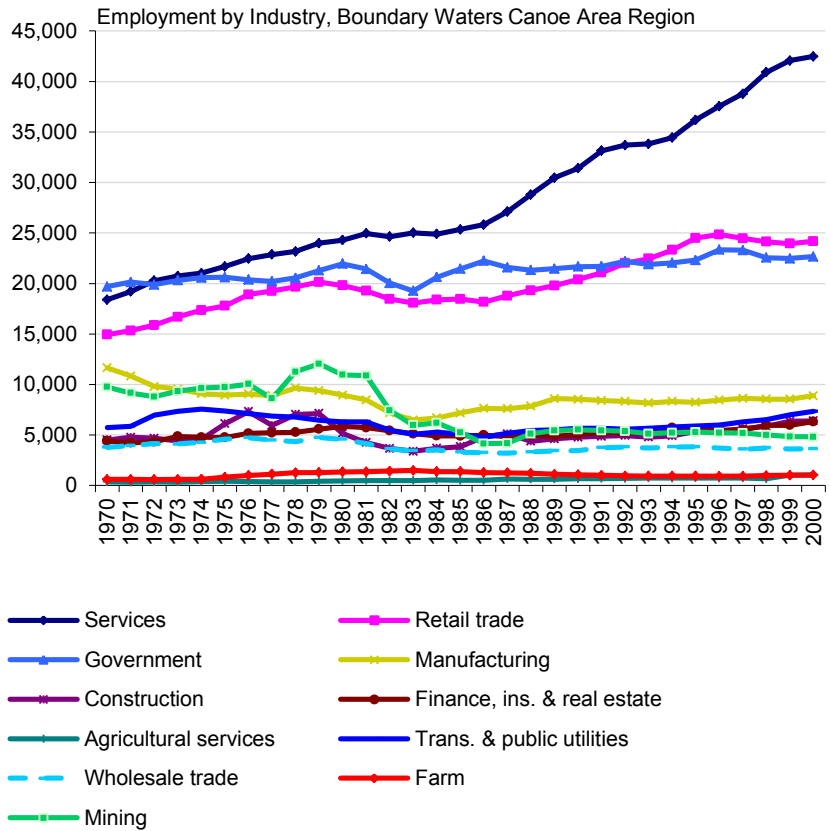
¹ Figure 3 depicts the average value of the various rural asset indicators for the Boundary Waters counties normalized according to the values for all counties in Minnesota. Thus, the value shown on the chart indicates the percentage of Minnesota counties with a lower value for each indicator. The percentage for all Minnesota counties is, by definition, 50% for each indicator.

Consistent with the supply-side pattern of economic development, the region has seen a decline in “goods-producing” employment and income. The goods-producing industries include farming, mining, timber, and manufacturing. This absolute decline is even more pronounced when

considered as a change relative to the more rapidly growing “service-producing” or service-related industries. Some of this shift is due to restructuring, outsourcing, and other trends in manufacturing and other industries. Functions ranging from engineering and advertising to accounting and maintenance that were once performed as an employee of a manufacturing or mining firm are now outsourced to firms that, technically, are in the “service” sector.

Such change has been happening world-wide for decades. Other shifts that are particular to the Boundary Waters region are likely due to the rise of the region as a destination for nature-based tourism, a desirable retirement location, and simply a good place to live and do business.

Figure 4: Employment by Industry, 1970 – 2000 (Source: US Bureau of Economic Analysis and Headwaters Economics 2013)



These trends are illustrated in Figure 4, which shows employment by major industries between 1970 and 2000². During this period, mining employment in the BWCA region peaked at around 12,000 jobs in 1979, declined rapidly through the mid-1980s and has remained fairly stable between three and five thousand jobs. Throughout this period, manufacturing employment has declined, from a high of more than 11,600 jobs in 1970 to just under 8,900 in 2000 and around 5,600 today (Headwaters Economics, 2013; BEA, 2013).

Meanwhile, service industries have seen a steep and steady rise in employment since 1970, and the wide ranging sector now accounts for seven out of ten jobs in the region. Many of these jobs are in health care, financial, and other professional services. Others are in tourism-related industries, like accommodations and food services and recreation services. (See Figure 4.)

² These time series stop in 2000 due to a change in the codes assigned to different industries. Pre-2000 data use the old SIC or Standard Industrial Classification coding. Since 2001 industries are classified in these data according to the North American Industrial Classification System. For big groups of industries (say, all manufacturing, or mining) the changes are slight, but especially for emerging industries in services, information and like, a seamless SIC-to-NAICS-based time series is not possible.

Measuring these changes by income, a similar pattern is evident: services-related industries are responsible for most of the growth in personal income in the Boundary Waters region and account for 60 percent of total labor earnings in the region (Headwaters Economics, 2013; BEA, 2013).

Ecosystem Services: Benefits beyond Jobs and Income.

As the words of Senator Nelson suggest above, there is much more to the wealth of the nation, or to a region within it, than what we typically think of as “the economy.” There are also the many benefits that accrue to people without ever passing through a formal market. We seldom pay directly for the quality of our air and water, for peace and quiet, or for the opportunity to visit a natural area for recreation or relaxation. Economists, however, are able to infer the financial value of these benefits from the choices people make in the marketplace or by considering what we would have to spend on water purification systems, for example, if nature weren’t purifying the water for free.

Using some broad, but conservative assumptions, Esposito et al. (2011) estimated the total value of nature’s benefits, or “ecosystem services” produced by all the federal conservation lands³ in the United States to be more than \$241 billion per year. The subset of those lands in the Boundary Waters region (i.e., Superior National Forest and Voyageurs National Park) contributes \$1.28 billion of that total. About 86% of this value is concentrated in so-called “regulating services,” like cleaning air and soil of pollutants and modulating natural disturbances. Next are “provisioning services” that include the supply of clean water for drinking and industrial processes, and raw materials, like timber and minerals. Finally, there are “cultural services” – often hard to measure – that represent the contribution of natural areas to human well-being by adding to human experience through scientific knowledge, artistic inspiration, and recreational experiences.^{4,5}

Note that while this estimate, in the “provisioning services” category would include the contribution of mineral resources from this region, it is crucial to consider the other (and potentially much more vast) economic value that could be diminished as a result of mining operations. While such an analysis of tradeoffs is beyond the scope of this summary, it does seem clear that there is a great deal of economic value that is already provided by the healthy natural areas of Northeastern Minnesota.

³ Includes lands managed by the National Park Service, USDA Forest Service, US Fish and Wildlife Service, and the Bureau of Land Management.

⁴ Left out of this list (and of the total dollar value reported) are “supporting services.” They are left out because the final value of such services as soil formation or navigation are most likely captured in downstream services, like food and fiber provision, recreation and others. Including them could lead to at least some double counting. Therefore, one should regard the estimate provided as a low-ball figure.

⁵ These estimates are based on what is known as the “benefit transfer method” of valuing the potential ecosystem services output of land of particular types (wetlands, open water, urban, forest, etc.). (Esposito et al. refine this method by taking into account the baseline health of each area and, thereby, discounting the output of areas that are likely to be less productive.) While not controversial, the benefit transfer method is definitely a first-approximation way of getting at ecosystem service values for a given area or region, and an assessment of the ecosystem services values of the Boundary Waters region in particular would provide different and better estimates.

Conclusion

In light of what appears to be the true foundation of the economy of Northeastern Minnesota – that is, a healthy ecosystem and the scenic, environmental, and health benefits that both support the region’s residents and beckon visitors and future residents – it seems obvious that the best course for the region is to continue to leverage the region’s natural assets into economic development. At the same time, decisions about development that could undermine that foundation should not be taken without further and careful consideration of what could be at stake and what the true economic tradeoffs would be.

Works Cited

- BEA. (2013). *Regional Economic Information System*. (US Bureau of Economic Analysis) Retrieved from Regional Economic Accounts: <http://bea.gov/regional/index.htm>
- Center for the Study of Rural America. (2003). *Regional Asset Indicators*. (Federal Reserve Bank of Kansas City) Retrieved March 31, 2008, from <http://www.kansascityfed.org/publications/research/mse/regional-asset-indicators.cfm>
- Esposito, V., Phillips, S., Boumans, R., Moolaert, A., & Boggs, J. (2011). Climate change and ecosystem Services: the contribution of and impacts on federal public lands in the United States. In A. Watson, J. Murrieta-Saldivar, & B. McBride (Ed.), *Science and Stewardship to Protect and Sustain Wilderness Values: Ninth World Wilderness Congress Symposium. Proceedings RMRS-P-64* (pp. 155-164). Meridá, Yucatán, Mexico: Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- Florida, R. (2000). *Competing in the age of talent: environment, amenities, and the new economy*. Pittsburgh, PA: Carnegie Mellon University.
- Freudenberg, W. R., & Wilson, L. J. (2002). Mining the data: analyzing the economic implications of mining for nonmetropolitan regions. *Sociological Inquiry*, 72(4), 549-575.
- Headwaters Economics. (2013). *Economic Profile System*. Retrieved May 2013, from Economic Profile System: <http://headwaterseconomics.org/tools/eps-hdt>
- McGranahan, D. A., Wojan, T. R., & Lambert, D. M. (2010). The rural growth trifecta: outdoor amenities, creative class and entrepreneurial context. *Journal of Economic Geography*, 1-29.
- Power, T. M. (2007). *The Economic Role of Metal Mining in Minnesota: Past, Present and Future*. University of Montana, Economics Department. Missoula, MT: University of Montana. Retrieved from <http://www.mncenter.org/LinkClick.aspx?fileticket=6M00TaRssSY%3d&tabid=322>

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