Economic Impacts of Idaho Mining Association Member Firms

2007-2017

Sponsored by the Idaho Mining Association

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November 11, 2019

Introduction

This is an economic impact assessment of the Idaho Mining Association Member firms on the Idaho economy. It was competed in November 2019. The Principle Investigator is Steven Peterson, Research Economist, and Clinical Associate Professor, Economics, College of Business and Economics, University of Idaho. Previous studies include the years 2007-2016, with this study reporting the most current year of 2017.

Methodology

Data: There are several measures of mining and mine processing employment. Government/private employment measures by either industry or firm have a greater variance than is commonly understood. The variance is due to the inclusion/exclusion of self-employed workers, part-time workers, sub-contracting, industry classification, cluster-related employment, and measurement errors. This is also true of mining.

2017 Mining Including Oil and Gas: Direct mining employment ranged from 5,448 the U.S. Bureau of Economic Analysis (BEA) (*including self-employment and extended proprietors*), to 2,176 by the Quarterly Census of Employment and Wages (QCEW) and the Idaho Department of Labor (*excluding self-employment and extended proprietors*) as reported by Economic Modeling Specialists, International (EMSI).

2017 Mining Excluding Oil and Gas: Direct mining employment ranged from 3,285 by the U.S. Bureau of Economic Analysis (BEA) (including self-employment and extended proprietors), to

[1] This report represents the analysis and conclusions of Steven Peterson (as a private consultant), and do not necessarily represent the University of Idaho or any other organizations or individuals.

1,948 by the Quarterly Census of Employment and Wages (QCEW) (excluding self-employment *and extended proprietors*) as reported by Economic Modeling Specialists, International (EMSI).

Mine processing (which is classified as all or part of chemical manufacturing) is a particularly important complement to phosphate mining and is utilized in agriculture chemical manufacturing (fertilizers and herbicides).

2017 Mine Processing: Idaho mine processing jobs ranged from 3,242 reported by the BEA (including self-employment and extended proprietors), measured *broadly* as total chemical manufacturing, to 844 reported by the QCEW measured narrowly as *agricultural* chemical manufacturing (i.e. fertilizer and herbicide production).

Total Idaho mine and mine processing employment (including oil and gas): Range—8,690 (including self-employment and extended proprietors) to 3,020 (excluding self-employment and the narrow definition of mine processing).

Total Idaho mine and mine processing employment (excluding oil and gas): Range—6,257 including self-employment) to 2,792 (excluding self-employment and the narrow definition of mine processing).

In 2017, there were approximately 2,711[2] Idaho Mining Association Member direct employees, subcontractors, or employees from cluster-related firm operations. (Direct mine and mine processing employment was estimated at approximately 1,762 jobs, 562 identified sub-contractor employees for these companies, and 387 employees from agricultural cluster-related Idaho operations.) The cluster related employment arises from fertilizer manufacturing and its infrastructure support for agricultural services in Idaho. The primary data was collected from the eight Idaho Mining Association (IMA) Member Firms, which constitutes about 80%-95% of all mining and mine processing in Idaho (depending on the year and the measure). The inputs (i.e. direct effects) can be seen in Figure 1. Mining jobs are among the highest paid industrial or service employment in Idaho and the earnings per worker (including salary, employee fringe benefits, and all employer contribution to fringe benefits) averaged $110,818 per worker in 2017 for IMA workers.[3] Total direct payroll (fully loaded) totaled nearly $212 million in 2017, not including subcontractors. In total, the Idaho mining industry (mostly by IMA members) pays approximately paid $4.5 million in property taxes, state royalties, rents, and fees in 2017.

[2] The total employment numbers were adjusted for the Hecla Lucky Strike mine strike (i.e. striking workers) that begin in March of 2017.

[3] This represents the average fully loaded compensation for IMA member employees excluding subcontractors.

Economic Model: IMPLAN (Impact Analysis for Planning) economic models were created for the State of Idaho (2016/2017) along with an EMSI model of Idaho. Economic impacts are reported in several different measures. Sales (output) represent total market transactions and are widest measure of economic activity. Gross regional product is a subset of sales and represents the net contribution of the enterprises to the regional economy. Total compensation (a subset of gross regional product) represents fully loaded payroll, which includes employee and employer contribution to wages and salaries. Jobs include full and part-time workers. Tax impacts include property taxes, sales taxes, personal and corporate income taxes, and excise taxes including royalties and fees.

Economic Base Assessment: This analysis is founded on economic base theory. A local or regional economy has two types of industries: base industries and nonbase industries. Any economic activity that brings money into the local economy from the outside is considered a base industry. A base industry is sometimes identified as an export industry, which is defined as any economic activity that brings new monies into the community from outside. For example, base industries can include mining, mine processing, high-technology companies, electricity production, medical services, retail trade services, federal government operations, as well as other manufacturing and service firms.

Nonbase industries are defined as economic activity within a region that support local consumers and businesses within the base sector. They re-circulate incomes generated within the region from the base industries. Such activities include shopping malls that serve the local population, business and personal services consumed locally, medical services consumed locally, and local construction contracts. Nonbase industries support the base industries.

Economic base analysis is important for identifying the vital export industries of a region. Nonbase industries, on the other hand, are important for keeping money within a region and stimulating local economic activity for residents. In this respect, nonbase industries can function in the same manner as an export industry.

Defining and Explaining Economic Impacts: Economic impacts measure the magnitude or importance of the expenditures of basic (export) industries. Our economic model estimates multipliers for each industrial and service sector. The *average* sales or output multiplier is 1.70. Every dollar of direct expenditures creates $1.70 dollars of total new spending in the community economy.

Impacts are apportioned into two levels. The first level is the direct impact of mining expenditures on each respective economy – the jobs, payroll and earnings, gross state product, and sales that are directly created by the industry as export (export is defined as any activity that brings new revenues to Idaho) businesses. The second is comprised of two parts: 1) the impacts on other regional businesses that provide goods or services to the mines – the indirect impacts – and 2) the effect of employee and related consumer spending on the economy – the induced impacts. The indirect and induced impacts are the so-called "ripple" or multiplier effects of mining and mine processing on the economy. The multiplier or ripple effects are driven by the exports of an economy. Exports, the new money coming into an economy, set off a web of transactions as each business seeks to fulfill the demands of their customers. Mining's impact upon the economy is thus comprised of the magnitude of the multiplier(s) and the magnitude of the exports. The sum of the direct, indirect, and induced effects measures the total impact of an industry to an economy.

Results: The economic impacts of the IMA members were estimated for year 2017 (Figure 1). IMA member firms added $968.1 million to gross state product (a subset of sales) including the multiplier effects (i.e. the direct, indirect, and induced impacts), added $567.8 million in total payroll compensation (a subset of gross state product), and created 8,735 jobs. The IMA directly employed 2,711 workers, and an additional 6,024 jobs were created from the backward linkages and the induced employee/consumer spending that constitutes the multiplier effects from mining activity and mine processing. The employment multiplier is 3.19 for the 2017 impacts. For every 1 direct IMA job, an *additional* 2.19 jobs are created in the Idaho economy. This jobs multiplier is robust because of three major factors: First, the high wages paid to mining workers creates a high level of employee spending and strong downstream consumer linkages to the overall economy. Secondly there are deep backward linkages from IMA firms' mining activity to Idaho's economy from the products and services that IMA firms purchase from other Idaho's businesses. Finally, mine processing, particularly fertilizer and herbicide manufacturing, has robust employment multipliers resulting from that industry's backward economic linkages. The magnitude of the mine processing jobs multiplier is similar to agricultural processing jobs multipliers in Idaho.

Figure 1: Economic Impacts of Idaho Mining Association Member Firms

Direct Effects (Excl. Multiplier Effects)	Total	
Direct Jobs		2,711
Total Compensation*	$	287,640,045
State Royalties, Rents, License, and Property Taxes	$	4,592,167

Econ. Impacts (Incl. Multiplier Effects)	Total	
Gross State Product	$	968,077,480
Total Compensation	$	567,814,324
Total Jobs		8,735

Taxes (Including Multiplier Effects)	Total	
Property	$	26,506,853
Sales/Excise/Royalties/Licenses	$	41,379,739
Idaho Income (Personal/Corp)	$	19,682,757
Total (Taxes)	$	87,569,349

*Includes Estimated Subcontractors

IMA members contribute nearly 1.3% to Idaho's gross state product including the multiplier effects.

Tax Impacts

The IMA member economic impacts create a substantial contribution to state and local tax revenues. This includes the direct tax payments of IMA firms and the indirect and induced tax impacts from the economic activity resulting from mine and mine processing. In total, the IMA member mining activity contributed $26.5 million in local property taxes; $41.4 million in Idaho sales taxes and excise taxes including royalties; $19.7 million in personal and corporate income taxes; for a total of $87.6 million, including the multiplier effects (Figure 1).

Regional Distribution of Economic Impacts

Figure 2 presents an estimation of the 2017 regional distribution of the economic impacts based primarily on metallic mining (north-central) versus nonmetallic mining and manufacturing (southern). In north-central Idaho (primarily in the counties of Custer, Lemhi, Shoshone, and Kootenai), there were $242.0 million in gross state product, $142.0 million in total compensation (payroll), 2,184 jobs, and $21.9 million in state/local taxes. For southern

Idaho (primarily in the counties of Caribou, Bannock, and Power) there were $726.0 million in gross state product, $425.9 million in total compensation (payroll), 6,551 jobs, and $65.7 million in state/local taxes.

Economic Impacts of Idaho Mining Association Member Firms-Regional

Economic Impacts	Southern Idaho	North-Central Idaho	Idaho Total
Sales			
Gross State Product	$ 726,058,110	$ 242,019,370	$ 968,077,480
Total Compensation	$ 425,860,743	$ 141,953,581	$ 567,814,324
Jobs	6,551	2,184	$ 8,735
Taxes (Including Multiplier Effects)	$ 65,677,012	$ 21,892,337	$ 87,569,349

2017 Economic Impacts of Mining and Mine Processing in Idaho: The 2017 estimated economic impacts for all Idaho mining and mine processing is included in this report.[4] This analysis includes all the economic activity of the Idaho Mining Association members, both mine and mine processing *except for agricultural services not related to mine processing*. It also includes all other (i.e. non-IMA member) mine and mine processing in Idaho. Mine processing encompasses fertilizer, herbicide manufacturing, and phosphate mining. Idaho Mining Association member represents approximately 95% of the total mining economic activity in Idaho (not including oil and gas; quarry, sand and gravel mining/processing; fertilizer mixing and distribution, small independent mining operations; and miscellaneous) or approximately 80% of total mining activity including all the above mining-related operations. Of the total economic impacts, nonmetallic mining operations and mine processing represents approximately 52% of the net contribution to gross state product and metallic and other mining is 48%. These include the multiplier effects. In total mining contributes $1.1 billion to gross state product, $661.7 million to total compensation, 9,883 jobs, and $94.9 million in property, sales, excise, and personal and corporate income taxes to Idaho (Figure 3).

Economic Impacts of Idaho Mining

Economic Impacts	Mining	Mine Processing	Idaho Total
Gross State Product	$ 500,327,488	$ 613,715,978	$ 1,114,043,466
Total Compensation	$ 343,816,894	$ 317,846,807	$ 661,663,701
Jobs	4,733	5,150	$ 9,883
Taxes (Including Multiplier Effects)	$ 37,921,008	$ 57,051,237	$ 94,972,245

[4] The Idaho Mining Association economic activity is for 2017. A 2016/2017 custom IMPLAN model was built.

Conclusions: Mining and mine processing represents a significant component to Idaho's economy providing high, living wage jobs, throughout the state. At a time when Idaho's average wages is lower relative to many other states, mining wages have remained substantially above the average wage, not just in Idaho but in most other states as well. Mining is capital intensive with extensive backward linkages throughout Idaho's economy and strong multiplier effects.