BUREAU OF BUSINESS AND ECONOMIC RESEARCH
UNIVERSITY OF MONTANA

# UPDATING THE ECONOMIC IMPACTS OF SIBANYE-STILLWATER IN MONTANA

FINAL REPORT
JUNE 2022

Sibanye-Stillwater
U.S. Region
Columbus, IN 59019

# Updating the Economic Contributions of Sibanye-Stillwater in Montana

This is a study of the economic contributions of the three facilities owned and operated by the metal mining company Sibanye-Stillwater in Sweet Grass and Stillwater Counties in south central Montana. The company's Montana facilities, which include two mines and a concentrator and recycling facility in Columbus, jointly constitute one of the largest private sector employers in the state, whose 1,978 jobs paid average compensation in excess of $151,000 per year in 2021. The growth in the company's core business, and the potential for continued growth into the future, merit the update to the BBER assessment of its economic footprint contained in this report.

Our basic finding is that the size and scope of the company's Montana operations have grown significantly since the BBER last studied its economic impact based on 2019 operations. Using operating and financial information provided by Sibanye-Stillwater for the year 2021, we find that:

- The company's presence in the Montana economy ultimately supports 11,334 jobs statewide across a wide spectrum of industries and occupations.
- Montana households in total receive more than $1.1 billion in income annually, of which $990 million is after-tax income available for spending, because of mining-related operations.
- Economic output, defined as gross receipts of Montana business and non-business organizations, is higher by $6.1 billion annually because of Sibanye-Stillwater.
- Tax and non-tax revenue received by state government is more than $295 million higher annually because of the mine.
- Montana is home to almost 18,500 more people, most of whom are working-aged people and their children, because of the jobs and income opportunities that exist in the state economy because of the Sibanye-Stillwater mine.

This report details how those results were derived, and how they differ from the findings of previous BBER reports. The unmistakable conclusion of this analysis is that the mining of platinum and other metals in south central Montana is a tremendous driver of wealth and prosperity across the state.

## About this Report

This report details the findings of an economic analysis of the Sibanye-Stillwater mining operations in south central Montana that was conducted in early 2022 by the University of Montana Bureau of Business and Economic Research (BBER). The authors of this report are Patrick Barkey and Derek Sheehan. Information used to conduct this study was provided by Sibanye-Stillwater. All of the findings are the responsibility of BBER, who is also responsible for any errors or omissions in the report.

## About the BBER

The Bureau of Business and Economic Research (BBER) is the preeminent business research organization in the state of Montana. Founded in 1948 as the research arm of the University of Montana's College of Business, the Bureau's mission statement states,

*"The purpose of the Bureau is to serve the general public, as well as people in business, labor, and government, by providing an understanding of the environment in which Montanans live and work."*

BBER has since grown to become one of the most sought-after sources of information and analysis on the Montana economy. The Bureau has published the *Montana Business Quarterly*, an award-winning business periodical, since 1962, and has conducted the Montana Economic Outlook Seminars, a half-day program on the economic outlook presented in 10 cities states wide, on an annual basis since 1976.

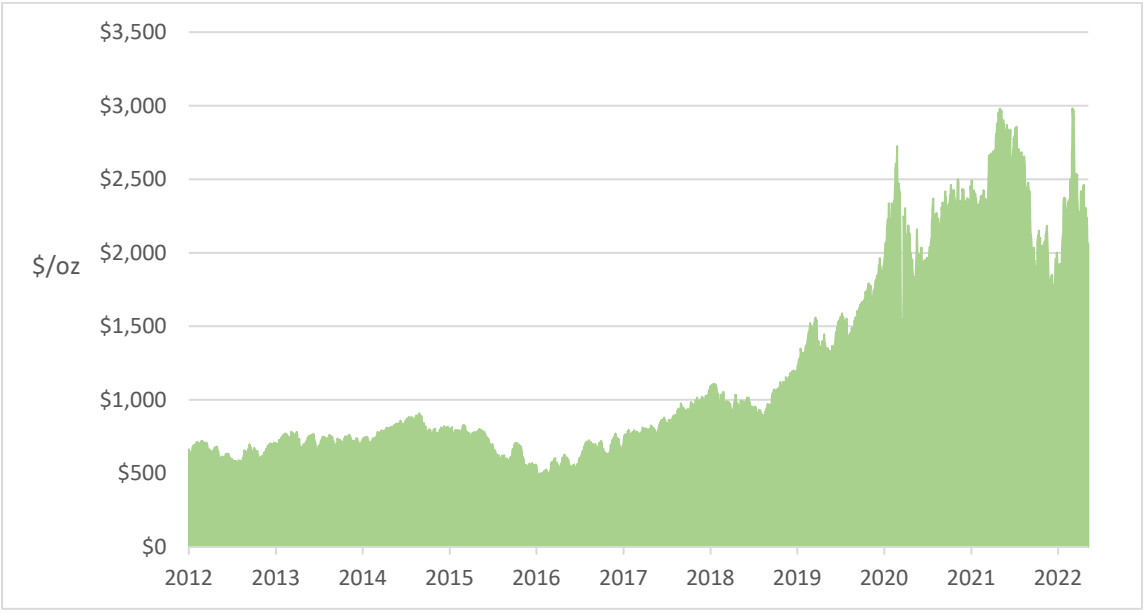
## Background

To say that the market environment for mining products in general, and platinum group metals (PGM) in particular, has changed is an understatement. This update of the economic contributions of our state's largest mining facility, the Sibanye-Stillwater complex in south central Montana, reflects many of the profound events – both in the global economy and at the mine itself -- that have occurred since the last BBER update was prepared using data from 2019.

Perhaps the most impactful event in the PGM industry in recent years – the enormous runup in prices for PGM metals in global markets – largely continued unabated despite the disruptions caused by the global pandemic (Figure 1). Palladium prices were quite volatile in 2021, surging to a high of almost $3,000 per ounce at their high point before falling lower than $2,000 per ounce toward the end of the year. But prices overall remained several orders of magnitude higher than before 2019, when prices below $1,000 per ounce were the norm.

Prices of another PGM commodity, rhodium, also saw strength in 2021. This metal, contained in motor vehicle catalytic converters, is a product from Sibanye-Stillwater's recycling facility in Columbus.

Figure 1. Palladium Prices, dollars per oz., 2010-2020




Those developments, together with the quality and capacity of the J-M Reef in south central Montana that is the source of its raw ore, help explain why the company has planned to expand its production

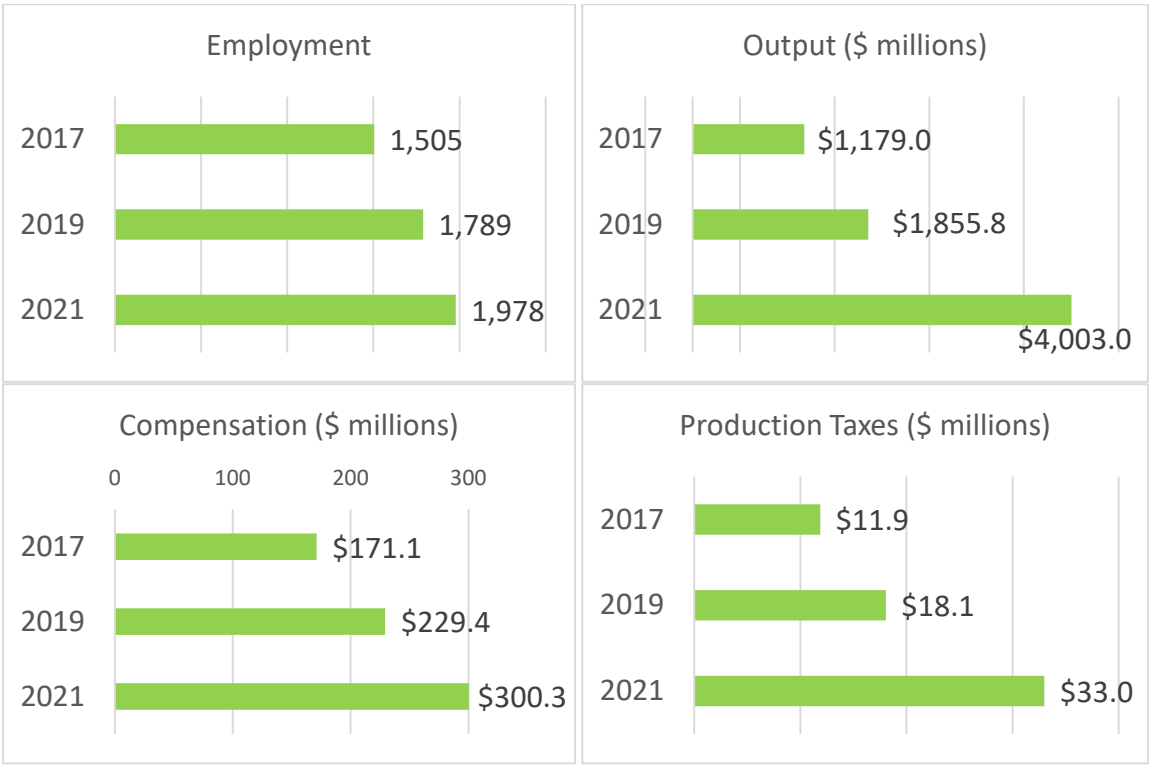
since 2019. The increased production that has come about is reflected in the impacts presented in this study, even as the increases in production costs and the extreme tightness of the labor market have caused production targets to be undershot.

## Sibanye-Stillwater's Economic Footprint in Montana

The activity of Sibanye-Stillwater in Montana is made up two mines in Stillwater and East Boulder, and an increasingly important processing and recycling facility in Columbus. This report focuses exclusively on these three facilities in south central Montana. We have used company operations data from 2021 in performing the analysis, but have included the information used to perform the 2017 and 2019 studies for comparisons.

This report updates previous BBER analyses of the contribution of the company to the Montana economy. Over the time that has elapsed since the BBER's first report was produced using operating information from 2017, the scale of the company's operations have grown significantly, as shown in Figure 2. Noteworthy in 2021 was a more than doubling of the value of output since 2019, to more than $4 billion. This reflected not only an increase in physical production, but also the sharp increases in the prices of palladium and rhodium produced at the facilities.

Figure 2: Employment, Compensation, Output and Production Taxes, Sibanye-Stillwater Montana Operations, 2017, 2019, and 2021




Source: Sibanye-Stillwater

Sibanye-Stillwater's Montana workforce has continued to grow in recent years. Between 2017-19 and 2019-21 employment grew 18 and 11 percent, as seen in Figure 2. The history of employment growth

before and through the most recent recession points to the stability of jobs at the company despite the recent volatility in employment in Montana overall.

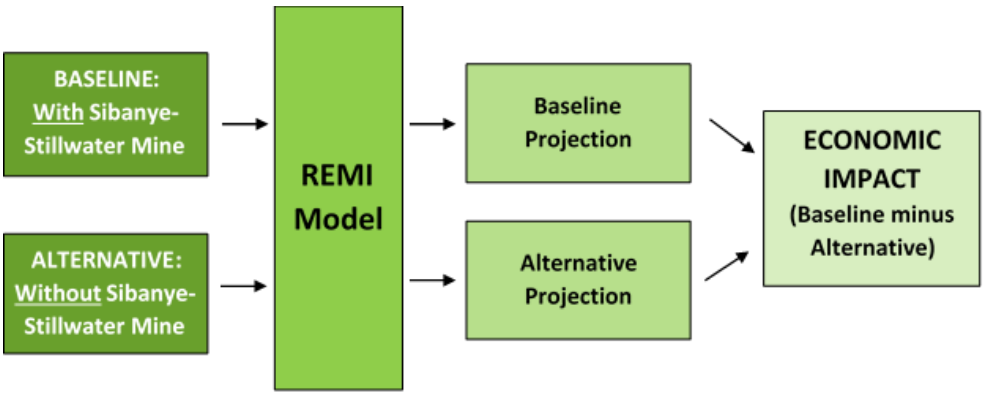
With the growth in workforce also came an increase in the total and average compensation paid to employees. The company paid total wages and benefits 140 percent higher in 2021 than in 2017. Over the same period, employment grew 31 percent resulting in the average compensation per job increasing from about to $114,000 to $152,000.

The growing footprint also increased tax revenues received by Stillwater and Sweet Grass Counties and the State of Montana. The $33 million paid by the company for the Metal Mines and the Gross Proceeds Taxes in 2021 that were directly linked to the value of mine production was an 83 percent increase over what was paid two years ago. This stands in contrast to the 22 percent decline in overall natural resources tax collections over the same period.

## Analysis of Sibanye-Stillwater's Contributions

An analysis of how the Montana economy is ultimately made bigger due to the presence of Sibanye-Stillwater asks the question: what would the state economy look like if the company's mining and processing facilities did not exist? In a hypothetical, no- Sibanye-Stillwater scenario, not only are the company's jobs, income, spending, production and tax payments lost to the economy, but so is the spending and income of businesses and households who receive spending from the company and, in turn, spend part of that income within the state.

Figure 3: Policy Analysis with the REMI Model




To fully capture the connections between the activity at Sibanye-Stillwater and the rest of the state economy, we use an economic model that has been calibrated with Montana economic data and designed for this purpose. The REMI model is a well-established tool that has been thoroughly documented and used in dozens of peer reviewed studies. As shown graphically in Figure 3, the analysis constructs an alternative, no-mine future for the state economy that removes the activity associated with the mine itself, with the economy settling into a new equilibrium as a result. Comparing that alternative to the baseline, status quo projection gives an estimate of the total economic contributions made by Sibanye-Stillwater's Montana operations.

The data obtained from the company for 2021, show that the jobs, spending, and income flows that are directly connected with the operations of the company's facilities in south central Montana are

substantial, as shown in Table 1. During that year, the company's 1,978 employees received more than $246 million in wages. The company paid in excess of $38.2 million to state and local governments in production-related taxes and property taxes. More than $223 million was paid to Montana vendors of goods and services.

Table 1: Direct Economic Impacts of Sibanye Stillwater Operations in Montana, 2021

| **Direct Economic Impacts** | |
|---|---|
| **Number of employees** | **1,978** |
| **Total Payroll** | **$263,356,908** |
| *Gross Payroll (including vacation, holiday, sick leave)* | *$246,615,437* |
| *Payroll Taxes (company's FICS; federal and state unemployment)* | *$16,741,472* |
| **Total Taxes Paid** | **$38,264,481** |
| *Property Taxes* | *$5,209,961* |
| *Metal Mines Gross Proceeds Tax* | *$12,672,489* |
| *Metal Mines License Tax* | *$20,382,031* |
| **Total Purchases** | **$439,349,189** |
| *Goods and Services in Montana* | *$223,992,041* |
| *Goods and Services Outside Montana* | *$215,357,147* |
| **Total Employee Taxes** | **$44,552,370** |
| *Employee withholding for Federal Taxes* | *$32,072,447* |
| *Employee withholding for State Taxes* | *$11,504,485* |
| *Employee withholding for FICA* | *$12,507,184* |
| *Employee withholding for Medicare* | *$3,663,025* |

In a hypothetical scenario where these spending flows did not occur, a broad spectrum of economic activities not directly related to the mine would be affected. The spending of workers would not occur, thus the receipts of businesses would be lowered and the scale of their operations would be smaller. Governments receiving tax revenues would need to either increase taxes elsewhere or decrease government employment and services. As these changes propagate through the overall economy, the total size of the local and statewide economic pie shrinks.

## The Economic Impact of Sibanye-Stillwater in Montana

We find that the total impact of Sibanye-Stillwater operations in Montana significantly exceed the direct impacts shown in Table 1 in both geography and scale. The company's operations ultimately grow the economic pie of the state significantly, as detailed in Table 2. The measures of economic activity in the Table all represent the difference between the actual economy and an economy where the Sibanye-Stillwater facilities are not present.

Table 2: The Economic Impact of Sibanye-Stillwater: Summary

| Category | Units | Impact |
|---|---|---|
| Total Employment..... | Jobs | 11,334 |
| Personal Income..... | $ Millions | 1,128.5 |
| Disposable Personal Income..... | $ Millions | 990.5 |
| Selected State Revenues..... | $ Millions | 295.5 |
| Output..... | $ Millions | 6,122.5 |
| Population ..... | People | 18,484 |

Because of the presence of Sibanye-Stillwater in the Montana economy:

- Montana households receive $1,128.5 million dollars in income each year, with $990.5 million after taxes;
- The state government receives $295.5 million each year in tax and non-tax revenues;
- Montana businesses and non-business organizations receive more than $6.1 billion in gross receipts;
- There are 18,484 more people who live in our state.

The total contributions made by Sibanye-Stillwater's Montana mining operations to the state economy are clearly larger than the employment, production, and purchases of the mine itself. These direct impacts have increased every year of the BBER's analyses. To gain more insight on how these impacts come about, we explore these findings in greater detail.

## Employment Impacts

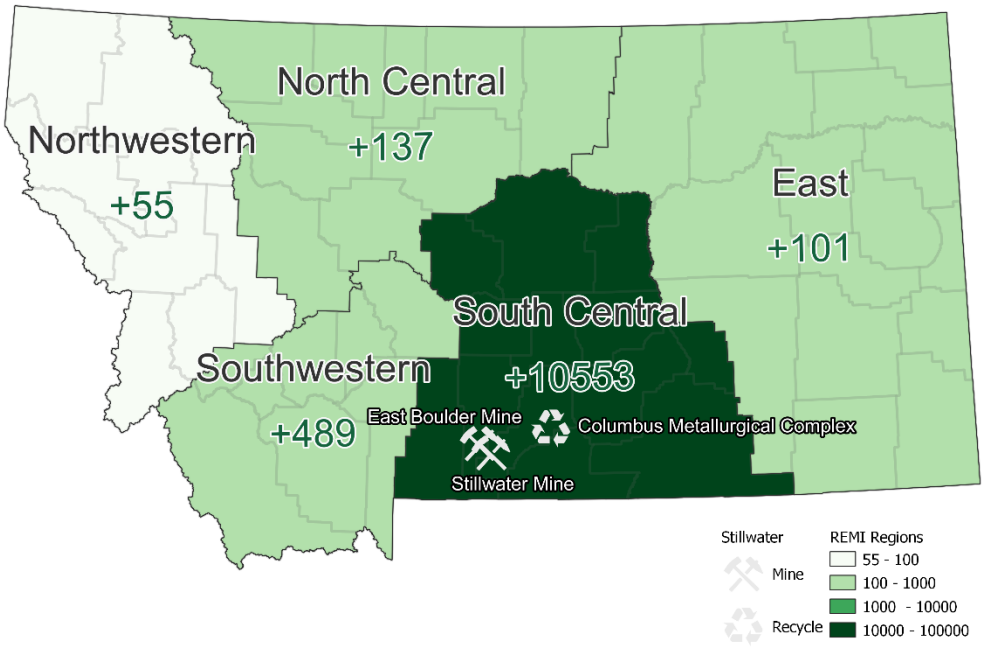
It is immediately apparent from examining the more detailed employment impacts of Sibanye-Stillwater that most of the jobs that exist in the state economy because of company operations are outside the company itself. As shown in Table 3, there are sizable job impacts in government, construction, retail trade, accommodations and food services, and health care. Even the mining industry job impacts, which contain the company's own Montana employment, contain non-Sibanye-Stillwater jobs in mining support services.

What accounts for this large number of jobs created outside of mining itself? The answer is, the spending flows that ultimately stem from the production and sale of palladium and other PGM metals to the rest of the world. The spending of company workers, the purchases of goods and services by the company itself, and the sizable taxes paid to state and local governments are received as income by businesses and governments within the state. They, in turn, spend a portion of what they receive to their own workers, vendors and governments who continue the process.

Table 3: Employment Impacts of Sibanye-Stillwater

| Industry | Jobs |
|---|---|
| Construction | 1,302 |
| Manufacturing | 170 |
| Mining | 2,073 |
| Retail Trade | 1,111 |
| Transportation and Warehousing | 210 |
| Professional and Technical Services | 892 |
| Administrative and Waste Services | 477 |
| Health Care and Social Assistance | 857 |
| Arts, Entertainment, and Recreation | 164 |
| Accommodation and Food Services | 896 |
| Other Services, except Public Administration | 502 |
| Other Private | 1,304 |
| Government | 1,376 |
| TOTAL | 11,334 |

Figure 4.: Employment Impacts of Sibanye-Stillwater by Region




The spending flows and the jobs that they support are not limited to the county or even the region where the mining operations are physically located. While the bulk of the almost 12,700 jobs which exist in the state because of Sibanye-Stillwater are located in the south-central region of the state where the facilities are located, there are also jobs in the other four Montana regions, as shown in Figure 4.

These jobs are due to trade flows between the regions, especially relating to spending supported by tax payments made by the company to state government.

## Personal Income Impacts

The income received by Montana households, or personal income, is another useful measure of how the operations of Sibanye-Stillwater contribute to the state economy. A more detailed examination of the composition of the personal income impacts, depicted in Table 4, gives additional insight to how the operations of Sibanye-Stillwater in Montana make the state economy larger.

Table 4: Personal Income Impacts, $ Millions

| Category | | Impact |
|---|---|---|
| Total Earnings by Place of Work | | 924.5 |
| | Total Wage and Salary Disbursements | 641.5 |
| Supplements to Wages and Salaries | | 186.3 |
| | Employer contributions for employee pension and insurance funds | 118.7 |
| | Employer contributions for government social insurance | 67.6 |
| | Proprietors' income with inventory valuation and capital consumption adjustments | 96.7 |
| Less: | | |
| | Contributions for government social insurance | 125.0 |
| | Employee and self-employed contributions for government social insurance | 57.4 |
| | Employer contributions for government social insurance | 67.6 |
| Plus: | Adjustment for residence | (8.6) |
| | Gross In | 2.4 |
| | Gross Out | 11.1 |
| Equals: | Net earnings by place of residence | 790.9 |
| Plus: | Property Income | 168.0 |
| | Dividends | 56.4 |
| | Interest | 85.1 |
| | Rent | 26.5 |
| Plus: | Personal Current Transfer Receipts | 169.7 |
| Equals: | Personal Income | 1,128.5 |
| Less: | Personal Current Taxes | 138.0 |
| Equals: | Disposable Personal Income | 990.5 |

We note from the table that earnings, defined as income derived from employment, makes up about 82 percent of the additional income Montana households receive. Thus, the impacts extend further than the job impact reported above. There are also sizable, positive impacts on property income (dividends, interest and rent) and transfer payments. The latter include social security payments and other government payments. These additions remind us that an economy with Sibanye-Stillwater not only has

more jobs and earnings, it also has more buildings, land improvements, and people, leading to increases in income from sources other than employment.

### State Revenue Impacts

There are several distinguishing characteristics of metal mining in Montana that produce revenue impacts for state and local governments that are larger than other business activities would produce. One of the most important is the special treatment of mining in taxation. Two taxes that have direct bearing on Sibanye-Stillwater are the Metalliferous Mines License Tax (MMLT) and the Metal Mines Gross Proceeds Tax. In 2021 Sibanye-Stillwater paid $20,382,031 in MMLT and $12,672,489 in Gross Proceeds Tax, the latter going to local governments. Both of these were substantially higher than the payments in the years analyzed in previous BBER studies.

Table 5: Selected State Revenue Impacts, $ Millions

| Category | Impact |
|---|---|
| Intergovernmental Revenue | 58.6 |
| Selective Sales Tax | 30.9 |
| License Taxes | 7.5 |
| Individual Income Tax | 38.5 |
| Corporate Income Tax | 16.8 |
| Other Taxes | 10.1 |
| Current Charges | 13.7 |
| Miscellaneous General Revenue | 11.5 |
| Utility Revenue | 1.1 |
| Liquor Store Revenue | 2.7 |
| Insurance Trust Revenue | 104.2 |
| TOTAL | 295.5 |

But the substantial tax payments made by the company only account for a portion of the impacts of the company's operations on tax and non-tax revenue received by state and local governments. Because an economy with Sibanye-Stillwater is larger than one without it, the larger population and tax base result in significant changes in many revenue streams, as shown in Table 5. The table only depicts revenue impacts to state government – local government revenue from property taxes and gross proceeds taxes are not included. They do include the MMLT, which is included in the selective sales tax category above.

### Compensation Impacts

We have already seen that the number of jobs in the state economy that owe their existence to the mining activities of Sibanye-Stillwater in south central Montana is well in excess of the 1,978 workers directly employed by the company. Further insight on the nature of those jobs can be seen by a closer examination of the total earnings those jobs ultimately command.

Montana workers receive more than a $640 million per year in wages and salaries because of the presence of Sibanye-Stillwater in the state economy, as shown in Table 6. This impact is due to (a) the wages paid to the Sibanye-Stillwater workers themselves, (b) the wages paid to workers in jobs that are indirectly supported by Sibanye-Stillwater spending, and (c) the increased hours and wage rates paid to jobs already in existence.

When one considers the impacts of the mining operations of compensation paid to all Montana workers, which includes the value of benefits paid to employees, this annual impact grows to $827.8

million. Finally, when one adds to this figure the income business proprietors receive, the total earnings impact due to Sibanye-Stillwater operations in Montana is $924.5 million per year.

Table 6: Compensation Impacts

| Category | Units | Impact |
|---|---|---|
| Wages and Salaries..... | $ Millions | 641.5 |
| Compensation..... | $ Millions | 827.8 |
| Earnings..... | $ Millions | 924.5 |
| Earnings per Job, New Jobs..... | $ Dollars | $72,742 |

This earnings impact amounts to an average of $72,742 in annual earnings for each job created directly and indirectly by Sibanye-Stillwater. When one considers that the average earnings per job in Montana is $47,270, it is apparent that the mine's operations ultimately support jobs that pay well in excess of what average jobs in our state pay.

## Growth in Sibanye-Stillwater's Contributions to the Economy

This study has presented a comprehensive assessment of the impacts that the presence of Sibanye-Stillwater has on the Montana economy. It is based on the company's operations in 2021, the most recent year with full operating data available.

Table 7: Growth in Sibanye-Stillwater's Economic Impacts

| | | Analysis Year | | |
|---|---|---|---|---|
| Category | Units | 2017 | 2019 | 2021 |
| Total Employment..... | Jobs | 5,995 | 9,382 | 11,334 |
| Personal Income..... | $ Millions | 500.9 | 827.8 | 1,128.5 |
| Disposable Personal Income..... | $ Millions | 438.0 | 742.5 | 990.5 |
| Selected State Revenues..... | $ Millions | 94.7 | 128.2 | 295.5 |
| Output..... | $ Millions | 1,556.0 | 3,043.8 | 6,122.5 |
| Population ..... | People | 10,724 | 15,694 | 18,484 |

The company's economic footprint has grown considerably as measured by headcount employment, total compensation paid, and the value of its output. And as Table 7 makes clear, the total contributions the company's operations make to the state economy increase along with its footprint. Employment, personal income, revenue and output impacts are substantially higher as reported here than they were in BBER's analyses in 2017 and 2019, in the case of economic output, nearly a fourfold increase in four years.

The growth that is documented in this study, and the growth that has occurred into this year, stand in contrast to other pieces of the state economy that have been challenged by economic volatility. The significant contributions made to tax revenues, personal income, and gross receipts to other businesses because of the company's mining operations in south central Montana are an important source of security and prosperity to the thousands of workers and families who directly or indirectly benefit from Sibanye-Stillwater's presence in Montana.

## Conclusion

This report summarizes and documents the findings of an updated analysis of the economic contributions of one of the largest and most important private-sector employers in Montana, the Sibnaye-Stillwater mining and metal processing facilities in the south central region of the state. The study asks the question – what would the economy of the state look like if the mining activities there did not take place? By considering this hypothetical question we get a measure of how the economy of the entire state is impacted by the production, employment, spending and tax payments directly associated with the mine.

In terms of jobs, income, sales and population, the answer to this question is clear. The operations of the mining complex ultimately support:

- 11,334 jobs across the state,
- more than $1.1 billion in annual income received by Montana households,
- $295 million in annual revenues from taxes and transfer payments to state government,
- more than $6.1 billion in additional gross receipts annually received by Montana business and non-business organizations, and
- the presence of almost 18,500 additional people who live here.

These sizable economic contributions can be expected to grow into the future as the scale and value of production at the Sibanye-Stillwater mining complex in south central Montana continues to grow in the future.