The Economic Contribution of the Island Mountain Development Group 2020 and the Impacts of COVID-19

BUREAU OF BUSINESS AND ECONOMIC RESEARCH

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Contents

List of Tables

List of Figures

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Executive Summary

Island Mountain Development Group (IMDG) is a LLC founded by the Gros Ventre and Assiniboine Nations of the Fort Belknap Indian Community (FBIC) to be the economic development branch of the two nations. It is a company aiding in creating a self-sustaining business opportunities, workforce training, motivate a positive business environment and resource development.

IMDG's primary business is Financial Technology which owns and operates three small dollar installment based lending services. The years 2019 and 2020 have been busy for IMDG. In those two years IMDG acquired Classic Design Homes and Legacy West Subdivision, a new home subdivision and expanded its E-Commerce operations to include a second E-Commerce office in Billings. IMDG established Buffalo Horse to provide solutions to government and commercial clients, Snake Butte Construction and Fort Belknap Information Technology were reorganized as affiliates of Buffalo Horse to support economic development. In 2021, Buffalo Horse and Heartland Consulting combined to form a new joint venture partnership: Heartlands Joint Venture.

IMDG provides an important economic impact to regional households, business and governments. This report estimates IMDG's impacts on jobs, income, population and economic output. The goal of this analysis is to provide information to affected parties on the potential economic implications resulting from IMDG business activities.

BBER uses the REMI economic model to make two projections for the North Central regional economy. One scenario assumes a continuation of current levels of activity at IMDG, while the alternative scenario assumes the absence of any activity at IMDG. The difference between these two projections represents the economic impact of the Island Mountain Development Group .

The economic impacts to the Montana economy of Island Mountain Development Group estimated in this study include:

- Over 453 jobs resulting directly and indirectly from IMDG activities;
- Disposable income resulting from these jobs amounting to $35.3 million;
- About $42.2 million in final goods and services production;
- Over $66.1 million in added gross output;
- Supporting a population of almost 582 people, including 340 working-age adult members of the labor force; and
- Between 2013 and 2020 IMDG provided almost $4.8 million in profit sharing with the Fort Belknap Indian Community.

These estimates constitute a conservative measure of the additional economic benefits to regional households, businesses, and governments ultimately derive from IMDG, as this analysis assumes activity is fixed at current levels.

To study the impacts of the COVID-19 pandemic on north-central economy, projections of the "before-during-and-after" economy were made. Projections using 2020 data revealed a deep drop in economic activity, however, given the quick recovery of the economy, Blaine and Phillips Counties are projected to witness a strong return to pre-pandemic levels across four different economic indicators: Total income, weekly wages, employment and gross county product (GCP).

1 IMDG Introduction and Overview

Island Mountain Development Group was established as the economic arm of the Gros Ventre and Assiniboine tribes of the the Fort Belknap Indian Community (FBIC) in 2009. IMDG's focus is to establish profitable business and a well-educated and solid workforce:

> *Island Mountain operates with the goal of building profitable businesses and a solid local workforce. By striving to build businesses and developing a strong workforce; we are generating a stronger local economy where tribally earned dollars are circulated within the Fort Belknap regional economy. IMDG is committed to the two tribes' core beliefs, collaborating with the Tribal Council members and employees to create a strategy to build a self-sustaining sovereign nation. Island Mountain fills gaps in local services to augment various Tribal services, boost the regional economy, and elicit the best in their employees.*[1]

IMDG's primary business is in an E-Commerce contact center which now owns and operates three small dollar installment loan services.[2]

Since the last impact study was done in 2019 IMDG has undergone considerable expansion. In 2019 IMDG added a new E-commerce support office in Billings, MT as well as additional business and real estate investments. In 2019, IMDG acquired several off-reservation real estate holdings adding professional office leasing and new home construction to the vertical. The real estate investments made in 2019 include: Leased office in the Oliver Building and offices and second IMDG E-Commerce contact center in the recently IMDG renovated 1537 Avenue D Professional Office Building, both in Billings, MT. IMDG also acquired Classic Design Homes, design and construction firm specializing in custom residential construction, and Legacy West Subdivision, a new home subdivision. These acquisitions were also made in Billings, MT.

In 2019 IMDG opened a second E-Commerce office in Billings, MT adding over 50 new employees. In 2020 IMDG established Buffalo Horse to provide solutions to government and commercial clients with unique skill sets to support clients' needs, from construction to business continuity to US National Security concerns. In September 2020, Snake Butte Construction and Fort Belknap Information Technology were reorganized as affiliates of Buffalo Horse, under common management, to support economic development. In 2021, Buffalo Horse and Heartland Consulting combined to form a new joint venture partnership: Heartlands Joint Venture.

In 2020 IMDG established the Montana Native Growth Fund (MNGF) a Community Development Financial Institution (CDFI) located on FBIC. The mission of MNGF is provide access to credit, capital, and financial education specifically targeted to Native Americans and tribal enterprises. And in 2020

Finally, to address the shortage of affordable quality housing on the FBIC, and many Tribal members live in substandard and overcrowded housing IMDG is collaborating with the Fort Belknap Indian Community Council and the Fort Belknap Tribal Housing Authority on new housing developments in Fort Belknap.

Table 1.1 displays the number of employees, payroll, operating revenues, expenses, and jobs for 2013,

[1] Source: IMDG webpage, Our Company, retrieved from `https://islandmtn.com/about-us-2/`.

[2] They are: Cash Advance NOW, Target Cash Now, and BrightLending. IMDG closed Green Trust Cash (by 11/2020), North Star Finance and Island Finance (12/2020), and Riverbend Finance (4/2021). An asset assignment was completed of the Spot On Loans.

the year IMDG was established, the last two years, 2019 and 2020, inflation adjusted to 2018 dollars. In 2020, the base for this analysis, there were 176 people employed by Island Mountain. By 2020 payroll expanded to 227 employees in the 2020Q4, of which over 70% are members of FBIC and 90% are classified as Native American. In 2020, payroll and benefits paid IMDG employees a total of $23.2 million.

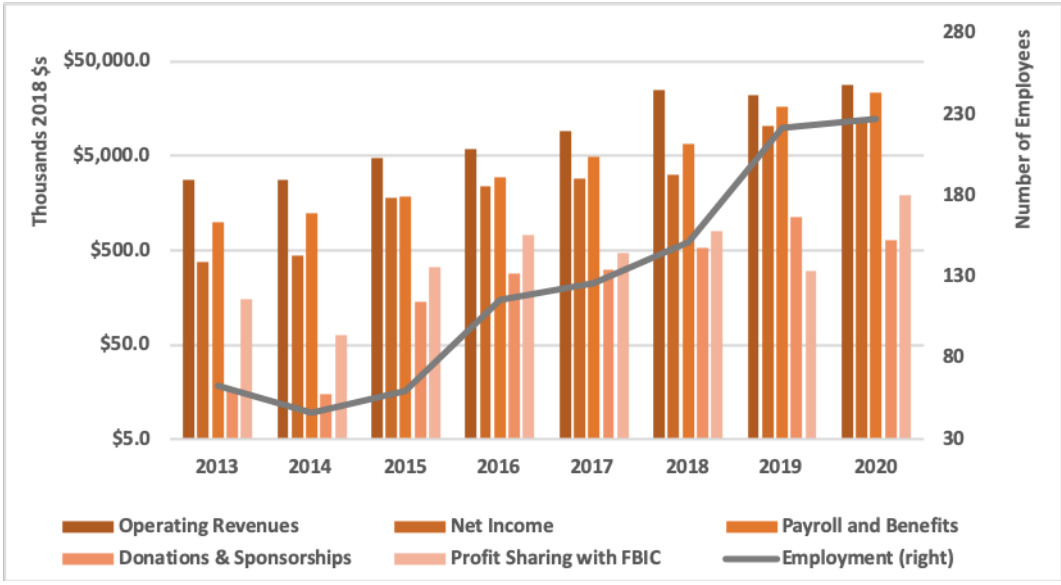
Table 1.1: IMDG Economic Information in 2018$s

				Growth 2013-20	
	2013	2019	2020	Total	Average
	(a)	(b)	(c)	(d)	(e)
Employment (jobs)	63	222	227	260.3%	20.1%
Operating Revenues (thousands)	$2,807	$21,788	$28,274	907.3%	39.1%
Payroll and Benefits (thousands)	$997	$16,819	$23,192	2226.4%	56.8%
Net Income (thousands)	$381	$10,413	$12,133	3080.5%	63.9%
Donations & Sponsorships (thousands)	$17	$1,113	$645	3807.6%	68.8%
Profit Sharing with FBIC (thousands)	$154	$300	$1,946	1163.5%	43.7%

Columns (d) and (e) show the growth of IMDG from 2013 to 2020, column (d) is the average growth rate and (e) shows the total percent change since 2013. IMDG has experienced rapid growth, for example, operating revenues increased 907% over the eight year period from 2013 to 2020, averaging about 39% per year; employment is 222% higher, and total payroll averaged an annual growth rate of 57% rose and is now 2226% higher than in 2013. Figure 1.1 shows the relevant business information from 2013 – 2020 – revenues, net income, payroll, etc. – in thousands of 2018 dollars. The number of employees are on the right axis. As the figure shows, IMDG has enjoyed a continuous upward trajectory. In particular, operating revenues increased by one-third between 2019 and 2020 alone. While not experiencing the same level of explosive growth, both net income and payroll, to date, average 64% and 57%, respectively, since 2013. The impacts of the pandemic are illustrated through the decline in employees from 2019 and 2020 This economic activity undoubtedly brings welcome economic relief in a region which is somewhat disadvantaged, see Section 1.1 below.

While the COVID-19 pandemic had an undeniable impact on FBIC's regional economy, by taking a cautious approach to managing day-to-day operations IMDG was able to effectively continue operations without sacrificing business results. Section 4 on page 17 illustrates projections of COVID-19 on the FBIC regional economy.

Figure 1.1: Scope of IMDG's Business



(Source: Island Mountain Development Group)

About the Bureau of Business and Economic Research

The Bureau of Business and Economic Research (BBER) was founded in 1948 as the research arm of the University of Montana's School of Business Administration. 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 developed 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 Poll, a quarterly sentiment survey of the Montana adult population, since 1980.

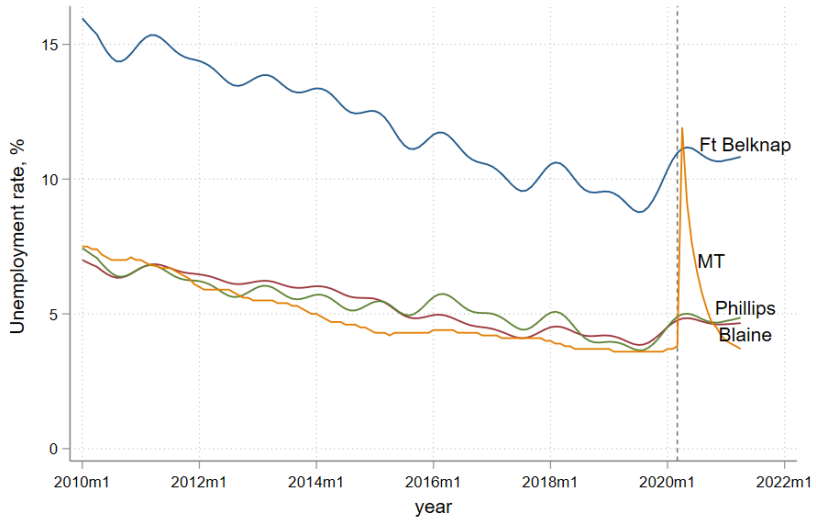
1.1 Economic Environment of IMDG

Fort Belknap Indian Reservation is the homeland of the Assiniboine and Gros Ventre Tribes. Fort Belknap Indian Reservation is forty miles south of the Canadian border and twenty miles north of the Missouri River and is the fourth largest Native American reservation in Montana. Tribal membership is 7,000 enrolled members. The regions primary industry is agriculture, consisting of small cattle ranches, alfalfa, and larger dry land farms. IMDG is headquartered in the town of Hays in Blaine County, Montana as is the majority of the Fort Belknap Indian Community, though a small percentage is in Phillips County. We consider both counties in the synopsis of the local economic environment, however the economic contribution analysis will focus only on Blaine County in the North Central region of Montana.

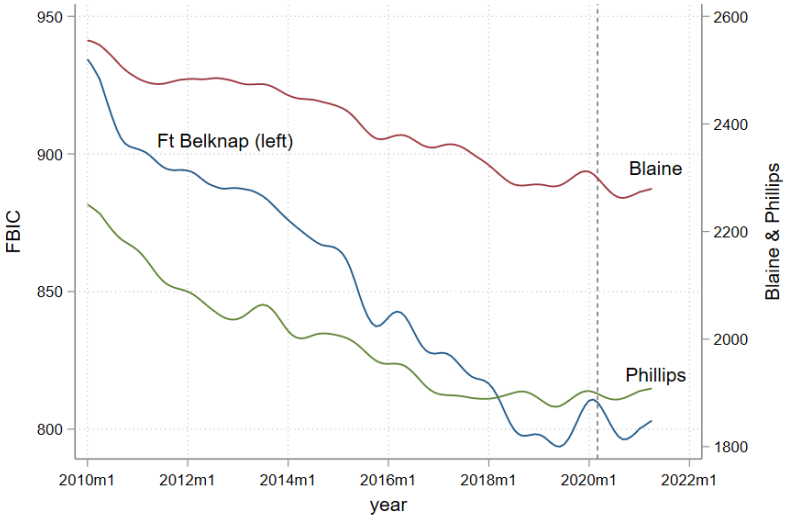
Newly available data makes it possible to investigate tribal economies directly, rather than rely on multiyear averages or county level data. Figure 1.2a shows the unemployment rates in the FBIC, Blaine and Phillips Counties, and the Montana average from 2010 to 2021. From the data we can immediately see that regional unemployment rates in general have been falling. The FBIC unemployment rate tends to be considerably higher than county level rates – it is roughly twice as high as Blaine County. We can also see the impact of COVID-19 pandemic, indicated by the vertical dashed line, while state unemployment rates rose sharply, they have since fallen to pre-pandemic level.

Figure 1.2: Unemployment rate and labor force

(a) Unemployment rate



(b) Labor force



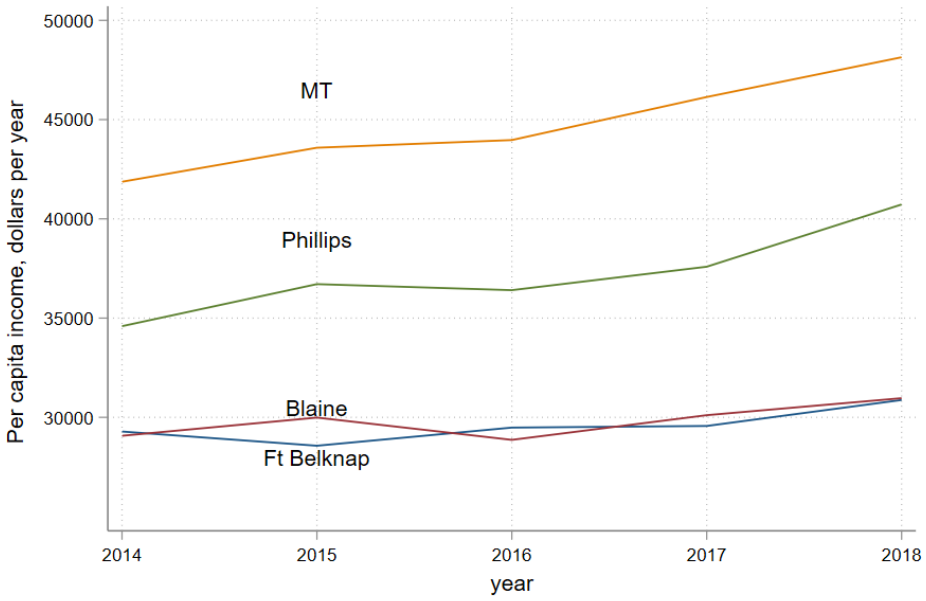
(Sources: Bureau of Labor Statistics, MT Department of Labor and Industry)

Regional unemployment rates began rising *before* the pandemic officially started and remain elevated. This is due to the structure of the economies. Most pandemic unemployment was driven by service,

particularly recreation and hospitality, industry jobs and were largely temporary because of forced shutdowns. When restriction were eased employment in these industries recovered quickly. On the other hand, the north central portion of the state is less exposed to these sectors implying the levels of unemployment are more structural in nature. Moreover, more residents are re-entering the labor force which, given the number of unemployed is relatively constant, drives up the unemployment rate.

Labor market data is updated regularly, unfortunately tribal and county level data is less so. Montana reservation income data is only available from 2014 to 2018. These data and county and state inflation adjusted per capita income data are illustrated in Figure 1.3. Blaine and FBIC per capita income is largely unchanged since 2014 and per capita income are statistically the same. Phillips County income is significantly higher, though still lagging behind the state average.

Figure 1.3: Per capita income (2018 dollars)



(Source: Bureau of Labor Statistics and Montana Department of Labor & Industry)

To put things in further perspective, we compare economic data in the Fort Belknap Indian Community to the US and Montana for the period 2013 – 2017. The data presented in Table 1.2 shows FBIC is experiencing considerable economic hardship. Inflation adjusted household income is a half the state average. While high school graduation rates are roughly the same as the state the percent of the FBIC population with a bachelors degree (BA) or higher is a third of the state average. Poverty on the Fort Belknap Reservation is just under four times the state average

These statistics, combined with the county data presented in Figures 1.2 and 1.3, speak to gains made on the FBIC through the efforts of IMDG, whose mission includes economic development. IMDG is a "...Native American economic development corporation dedicated to creating a self-sustaining, local economy through the creation of business opportunities, jobs and by providing workplace training, positive role models, and resource development."[3] The data presented is the time-frame during which IMDG matured and expanded, and, given the results presented here, future data updates should result improvements to the economic situation on the Fort Belknap Reservation and Blaine county.

[3]Source: Island Mountain Development Group , `https://www.islandmtn.com/our-story`.

Table 1.2: FBIC compared to Blaine, Montana, and US

	FBIC	Blaine	Montana	US
Real median household income	$29,582	$34,813	$53,628	$58,197
Less than high school, % of population	14.5	14.4	14.9	11.3
BA or higher, % of population	11.9	20.7	32.3	34.2
Poverty, % of population	50.7	26.2	12.7	13.4

Notes: All data is the 2013 – 2017 average. Real income is in 2012 dollars.

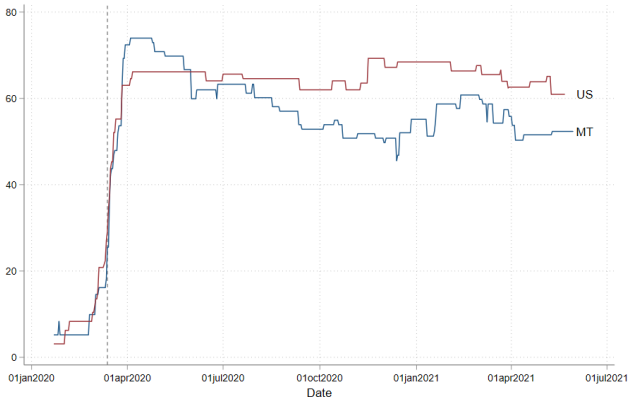
Sources: FBIC data is from the Center for Indian Country Development, Federal Reserve Bank of Minneapolis. State and national income data is from the BEA, state and national labor market data is from the BLS; and state and national education data is from the US Census Bureau.

To put the effects of the global COVID-19 pandemic into perspective we first need to understand how policy and individual behavior influenced economic activity. Figure 1.4 provides some insight into the level of economic activity in Montana and the FBIC regional economy. Figure 1.4a illustrates the government restrictions that were put on state activity compared to the US average – a value of 0 is no restrictions – constructed by Oxford COVID-19 Government Response Tracker (OxCGRT). As the figure shows, both the US and Montana imposed economic restrictions in mid-March, 2020, the vertical dashed line. Initially, Montana imposed more restrictions than the US as whole, but by June 2020 those restrictions began easing compared to the US and remain relatively low.

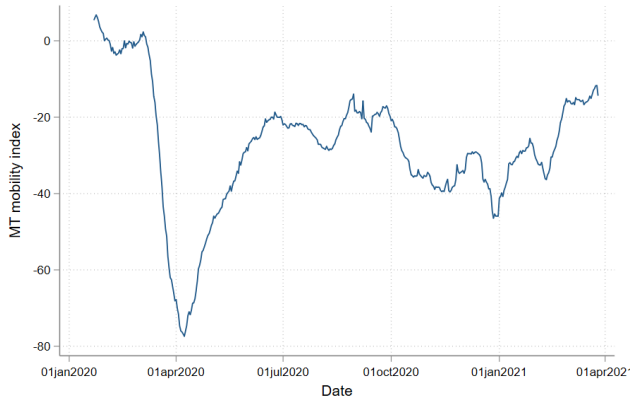
Figures 1.4b and 1.4c illustrate how policies and individual behavior impacted overall activity. The figures show weekly indices of mobility constructed by the Federal Reserve Bank of Dallas using cell phone data from January 2020 to April 2021, the MEI data became unavailable after this date. The indices proxy for economic activity with a "normal", pre-pandemic, activity having a value of 0. A fraction of the low levels of mobility reflect the economic restrictions shown in Figure 1.4a and the remaining fraction represent individual behavior. As Figures 1.4b and 1.4c show, Montana is still below pre-COVID levels, Phillips activity has largely returned to normal while Blaine is still almost 40% below pre-pandemic levels, through May 2021.

Figure 1.4: Stringency and mobility indices

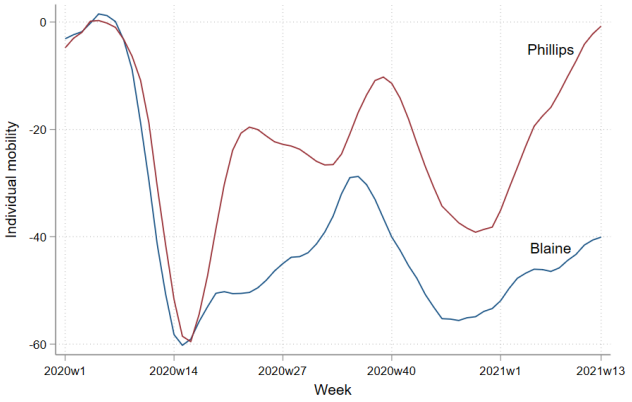
(a) Stringency index: Montana



(b) Mobility: Montana



(c) Mobility: Blaine and Phillips



(Source: University of Oxford and the Federal Reserve Bank of Dallas)

2 Policy Analysis with the REMI Model

Regional economic impacts occur because of events or activities that create new expenditures within that region. New spending – that is, spending which is over and above existing expenditures, and which does not displace other spending elsewhere in the region – not only adds to economic activity in its own right, but it also induces further spending as the recipients of wages, sales, and tax revenues spend a portion of their income in the local economy. Changes in the path of investment, migration, prices, and wages are also possible.

This study uses an economic model, calibrated to represent the interactions specific to regional economies, to estimate the economic impacts resulting from operations at IMDG. Leased from Regional Economic Models, Inc., the REMI model is one of the best known and most respected analytical tools in the policy analysis arena, and has been used in more than 100 previous studies as well as in dozens of peer-reviewed articles in scholarly journals. It is a state-of-the-art econometric forecasting model that incorporates dynamic feedback between economic and demographic variables. The REMI model forecasts employment, income, expenditures, and populations for counties and regions based on a model containing over 100 stochastic and dynamic relationships, as well as a number of identities. A full explanation of the design and operation of the model can be found in Treyz (1992).[4]

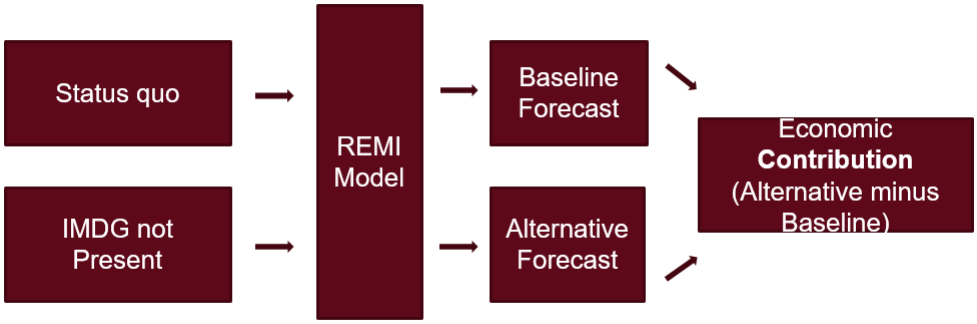
2.1 The REMI Modeling Methodology

The basic approach of using the REMI model to produce the results for this study is illustrated in Figure 2.1, below. The analysis started with a baseline projection for the North Central regional economy, using the status quo assumption that IMDG in Blaine county continues to operate at current levels. Next, the analysis employed the REMI model a second time, simulating an alternative scenario where IMDG and its associated economic activity are absent from the regional economy.

[4]Treyz, C.; Rickman, D.; and Shao, C. (1992). "The REMI Economic Demographic Forecasting and Simulation Model", *International Regional Science Review*, 14(3): 221-53.

The difference between the baseline scenario and the simulated scenario constitutes the magnitude of the impact of IMDG on the regional economy, and represents the gains the region is experiencing due to its operations.

Figure 2.1: Policy analysis using the REMI model



The REMI model utilizes historical data on production, prices, trade flows, migration, and technological advances to calibrate the relationship between five basic blocks of the regional economy, as shown in Figure 2.2, below. These blocks are:

(1) Output and Demand;

(2) Labor and Capital Demand;

(3) Population and Labor Supply;

(4) Compensation, Prices and Costs; and

(5) Market Shares

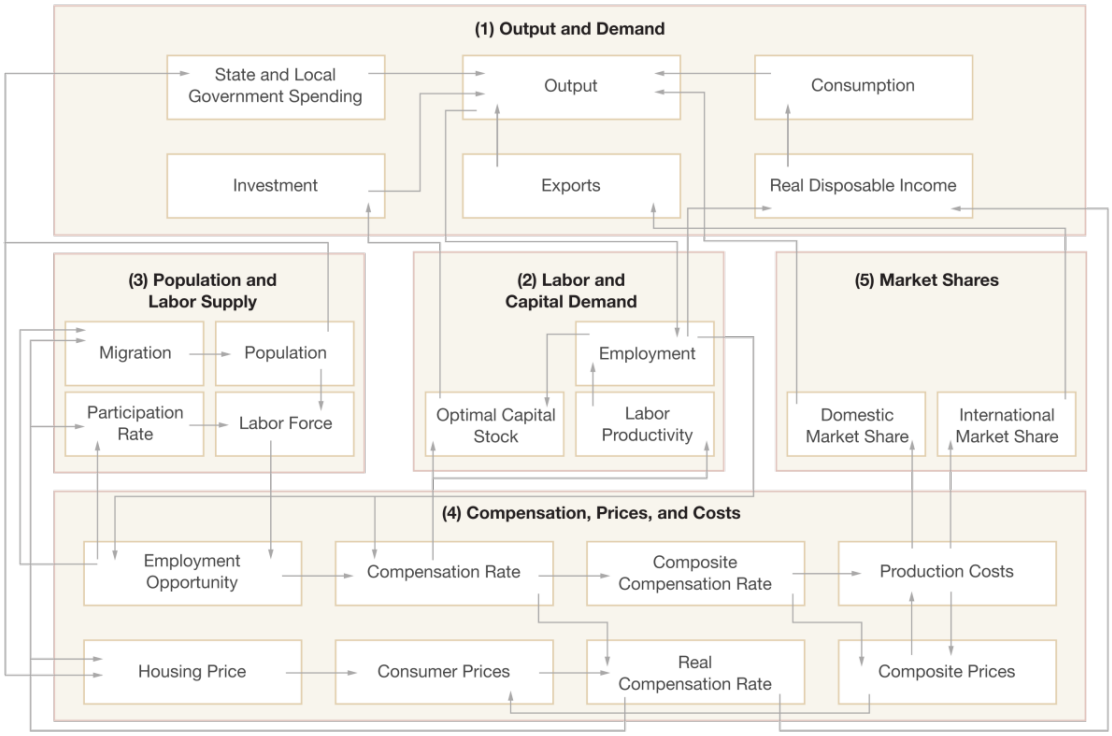
The underlying philosophy of the REMI model is that regions throughout the country compete for investments, jobs, and people. When events occur in one area, they set off a chain reaction of events across the regional economy that causes dollars to flow toward better investment and production opportunities, followed over time by workers and households toward better employment opportunities and higher wages.

The REMI model consists of an 82-sector input/output matrix that models the technological interdependence of production sectors of the economy, as well as extensive trade and capital flow data. Together, these components enable the estimates of the shares of each sector's demand that can be met by local production.

The differences in production, labor demand, and intermediate demand associated with the existence of IMDG impact these blocks, causing them to react to the changes and adjust to a new equilibrium. This new equilibrium constitutes the alternative scenario referred to above—the absence of the operations.

As powerful and flexible as this tool is, the answers it provides are only as good as the questions posed to it. The majority of work in this study was to carefully craft the inputs used to construct a scenario for the economy that faithfully represents all of the events, income flows, and the direct and indirect impacts that would occur in the absence of IMDG.

Figure 2.2: Schematic model of REMI Linkages



2.2 The Direct and Indirect Economic Contributions of IMDG

The analysis of the economic impact of IMDG can be conceptually broken down into three separate and distinct components:

(1) *Direct effects*: Payroll, vendor purchases, tax payments and other economic flows that come from the operations of the facility itself;

(2) *Indirect effects*: Comprises other economic activities which are connected to IMDG but are not part of the facility itself; and

(3) *Induced effects*: Direct and indirect spending is received as income by individuals, businesses and governments within the state, and re-spent in the economy, supporting additional jobs and income streams, such as the retail and restaurant industries, the so-called "multiplier".

We will refer to the aggregate of these individual effects as the "gross effects".

As described in the previous section, the REMI model is used to estimate the difference in economic activity that can be expected to occur in Montana under two different scenarios: one with and one without the presence of IMDG in the regional economy. The difference in these two outcomes for the economy in terms of employment, income, sales, and other economic metrics is the economic impact of IMDG.

The construction of the scenarios that form the basis for the analysis presented in this study reflect:

(a) The ongoing economic activity of IMDG; and

(b) The activity of other entities that are closely associated with the outputs of IMDG but are not a

part of the enterprise itself.

3 The Economic Impact of IMDG

This analysis considers two economic scenarios for the Fort Belknap regional economy. The economic impact reflects the alternative resting point for the economy in the absence of Island Mountain, including the absence of jobs that currently exist in Blaine county. In 2019 IMDG opened an additional contact center in Billings, MT

The results of the economic impact can be found in Table 3.1. We consider the individual impacts for Blaine County, home to the IMDG headquarters, Yellowstone County which assesses the economic impact of the new Billings office, and the statewide economic impact which combines the results of both offices. Note you cannot simply add the two county impacts to get the statewide affects because there is potentially a degree of cross regional impacts leading to a different statewide impact.

The impacts include the direct, indirect, and induced effects. IMDG has a considerable impact on the Blaine-Phillips regional economy. IMDG's activities generate a total of 453 individual new jobs, 315 in Blaine County and 90 in Billings. IMDG's Hays office has 156 employees generating which contribute to adding an additional 78 individuals to the labor force, a labor force multiplier of 2.0. Billing's 56 employees generate 10 additional new members of the labor force for a multiplier of about 1.6. Given the size and diversity of Billing's economy vis-á-vis Hays the lower multiplier is understandable – IMDG's ripple effect throughout the FBIC economy will be considerably larges than in Billings. IMDG's total impact on the state labor force is a total of 340.

Table 3.1: Total Economic Impact Summary

		Hays	Billings	
Category	Units	Blaine	Yellowstone	MT
Population	Individuals	376	107	582
Labor Force	Individuals	221	66	340
Total Employment	Jobs	315	90	453
Gross State Product	millions	$29.4	$8.6	$42.2
Gross Output	millions	$45.9	$13.2	$66.1
Value-Added	millions	$29.4	$8.6	$42.2
Personal Income	millions	$27.0	$8.2	$39.9
Disposable Personal Income	millions	$23.9	$7.2	$35.3

(Note: Output and income results are in constant 2020 dollars.)

Reviewing the remaining results yields additional evidence for the economic impacts of IMDG and both the regional and state economy. IMDG's contributions to gross state product (GSP), which measures output of all *final* goods and services, are $29.4 million, $8.6 million, and $42.2 million for Blaine, Yellowstone, and the Montana economies respectively. Similarly, gross output, an production measure of all intermediate and final goods and services is about two-thirds larger than GSP for each of the geographical locations. Value added represents the additional value of the intermediate production of goods and services that contribute to GSP. The result of these new jobs and output contributes to household income and after-tax, or disposable, income.

While a large portion of these economic contributions are associated with the IMDG , non-IMDG businesses, workers and households reap considerable economic gains as well. This is easily seen from a more detailed look at the jobs and revenues that owe their existence to IMDG activities.

Table 3.2 breaks down jobs and output by sector, ordered by percent of jobs. A large portion of the 453 jobs which exist in the Montana economy because of the presence of the IMDG are in professional services, which includes IMDG. However, about 46% of these jobs are in other industries – including government, retail trade, hospitality, health care and social assistance, other services, and finance and real estate. These jobs come about as IMDG spending is received as income by area businesses and governments, who in turn produce output, hire workers and spend in the state economy.

Table 3.2: Sector employment and output impact on Montana

	Employment		Output	
Industry	(jobs)	% total	(millions)	% total
Professional & Technical Services	186	41.0%	$29.4	44.5%
Government	51	11.2%	$6.3	9.6%
Retail Trade	48	10.7%	$5.0	7.6%
Hospitality	37	8.2%	$2.6	4.0%
Health Care & Social Assistance	35	7.7%	$5.2	7.9%
Other Services	19	4.3%	$1.4	2.2%
Finance & Real Estate	19	4.1%	$7.0	10.6%
Other Private	18	4.0%	$3.6	5.5%
Construction	17	3.8%	$2.7	4.1%
Administrative & Waste Services	17	3.7%	$1.6	2.5%
Transportation & Warehousing	4	1.0%	$0.4	0.6%
Utilities	1	0.2%	$0.6	0.8%
TOTAL	453	100.0%	$66.0	99.8%

(Note: Output is in constant 2020 dollars and does not sum to 100% because those sectors which do not add jobs are excluded from the calculation.)

The scope of business and non-business activity that is due to the presence of IMDG in the Montana economy can also be seen from an examination of economic output, or gross receipts, impacts, also in Table 3.2. The figures shown in the fourth column represent the gross revenues of business and non-business organizations that are due to the IMDG for individual industries, with two exceptions. Instead of gross receipts, the output impacts for retail and wholesale trade shown in the table are the markup – receipts net of purchases. Collectively, the next six largest sectors – after professional and technical services – job gains discussed account for about 42% of total output.

Statewide household personal income attributable to IMDG is $39.9 million higher in Montana each year because of IMDG, as detailed in Table 3.3. On an after-tax basis, the $35.3 million additional disposable personal income in the state is a sizable increase in spending power of households and individuals. The detail on personal income reveal that a more populous economy also has smaller, but meaningful, increases in income derived from property income.

Table 3.3: Personal income impacts (millions of 2020 dollars)

Category		Impact
Total Earnings by Place of Work		$37.4
	Total Wage and Salary Disbursements	$28.2
Supplements to Wages and Salaries		$7.0
Less:	Contributions for government social insurance	$5.0
Plus:	Adjustment for residence	-$0.1
Equals:	Net earnings by place of residence	$32.2
Plus:	Property Income	$3.8
Plus:	Personal Current Transfer Receipts	$3.8
Equals:	**Personal Income**	$39.9
Less:	Personal Current Taxes	$4.5
Equals:	**Disposable Personal Income**	$35.3

4 COVID-19's Economic Impact

The second part of the study analyzes COVID-19's impact on Fort Belknap's regional economy. To provide a forecast for the macroeconomic variables of the FBIC's economic region, specifically Blaine and Phillips Counties, we use an econometric model which is similar in spirit to what many other states and municipalities. We use a similar methodology to that employed by New York City in their revenue forecasting.[5] In the most basic terms, the BBER's forecasting model uses local and national data incorporated into a econometric model.

The main econometric component of the forecast consists of two structural statistical models. The first step uses data derived from a national econometric model from IHS Markit.[6] IHS Markit updates national economic forecasts two to three times a year, so we can make comparisons across different states of the economy. Using county level data collected from the Bureau of Economic Analysis and the Bureau of Labor Statistics, we forecast four major macroeconomic variables for the combined Blaine and Phillips Counties: real personal income, employment, weekly wages, and output, as measured by gross county product (GCP), the county level analog to gross domestic product.

Estimates were done using least squares using Newey-West errors to correct for autocorrelation. We experimented with multiple models to until we found the "best fit". To ensure our model and interpretation was consistent, we used the same independent variables across all models.

To fully appreciate the impact of COVID-19 on the FBIC regional economy forecasts were conducted using four different IHS Markit US forecasts. The first forecast uses IHS Markit data from December 2019, denoted "2019". This could be considered a "benchmark regional economy" and represents the economic conditions that would have existed had the pandemic not struck. The second forecast using updated IHS Markit forecast done in June of 2020, denoted "2020". During this period, there was a large degree of uncertainty about the length and depth of restrictions imposed, see Figure 1.4a. This forecast also includes the passage of the "Coronavirus Aid, Relief, and Economic Security Act"

[5] Hartzog, Melanie and Francesco Brinidis (2016). *Tax Revenue Forecasting Documentation report for Financial Plan Fiscal Years 2016-2020*, NYC Office of Management and Budget, New York City.

[6] "US Economic Outlook", `www.ihsmarkit.com`. IHS does not abbreviate the Indian Health Service.

(CARES Act) on March 27, 2020 but does not yet include the full impact of the stimulus package. This will represent the most pessimistic forecast and represents an economy with no government economic support.

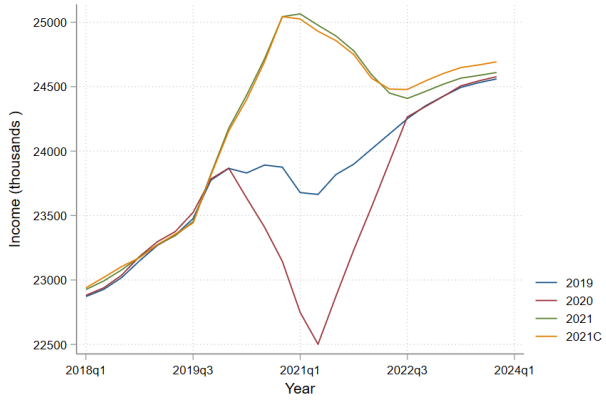
Somewhat unexpectedly, the US economy recovered relatively quickly which is reflected in the 2021 forecasts. There are two forecasts made using May 2021 IHS Markit forecast data. The first is a "status quo" forecast with anti-COVID measures continue at the current pace, "2021". The second 2021 forecast is the "optimistic" forecast which allows for easing containment measures, accelerating vaccinations, and more stimulus to support the recovery, the probability of this scenario is 30%. This forecast is denoted "2021C". All forecasts show the six year period 2018Q1 – 2023Q4.

4.1 Impact of the COVID-19 pandemic on the FBIC regional economy

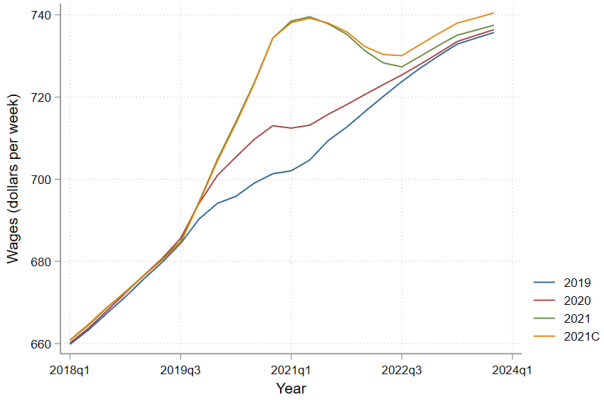
Figure 4.1 shows total income and average weekly wage. As can be seen in Figure 4.1a estimated total income *higher* in all the post-2019 forecasts than the benchmark result. This is largely due to the large transfer payments made available to US residents in the form of direct payments and higher unemployment insurance payments. The 2020 forecast is lower than both the 2021 forecasts because it does not include the additional income support as a result of December 2020's Families First Coronavirus Response Act (FFCRA) nor the American Rescue Plan which extended the FFCRA. Total income shows a steep drop, but that is because the aforementioned stimulus had yet to ripple through the economy. Both the 2021 forecasts are above the 2020 forecast. However, the economic relief will be ending soon, Montana's Federal Pandemic Unemployment Compensation (FPUC) of an additional $300 per week concludes on June 27, 2021. This will likely have some impact on economic activity in the region. As shown in Figure 1.2a, unemployment rates in Blaine and FBIC remain stubbornly high. Finally, both these forecasts converge to pre-pandemic levels by 2023.

Figure 4.1: Impact of COVID-19 on income: Blaine and Phillips Counties combined

(a) Total income (in millions $s)



(b) Average weekly wage (in $s)

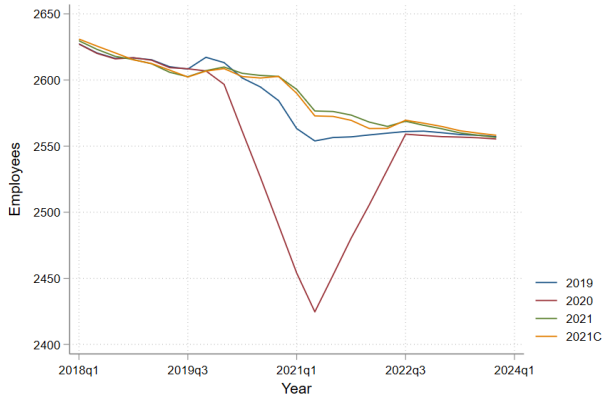


(Source: Bureau of Labor Statistics, IHS Markit, BBER)

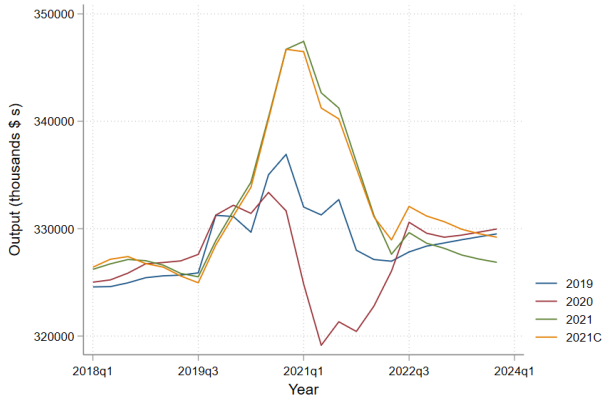
We now turn our attention to output related variables, the number of employed and GCP, shown in Figure 4.2. As before, the 2020 forecast is the most pessimistic estimate with both employment and GCP declining dramatically throughout 2020. However, the good economic outcomes realized in 2021 boosts the two 2021 forecasts. Nevertheless, all the estimates show a continuing decline in employment with estimates converging during 2022, returning to pre-pandemic trends. Employment, in Figure 4.2a, shows a decline throughout 2020, losing roughly 150 jobs before returning quickly by the end of 2022. All the estimates forecast continued decline in line with the labor force dynamic shown in Figure 1.2b on page 8.

Figure 4.2: Impact of COVID-19 on output: Blaine and Phillips Counties combined

(a) Number employed



(b) Gross county product



(Source: Bureau of Labor Statistics, IHS Markit, BBER)

Estimates for GCP, Figure 4.2b, also show interesting dynamics. Unlike the forecast decline in 2020, estimates from 2021 show that GCP accelerated in 2020 and 2021, out pacing the benchmark 2019 model. This is a reaction to higher disposable income because of transfer payments from the aforementioned CARES Act and American Rescue Plan which ameliorated declines in aggregate demand, as we can see in the 2021 personal income forecast in Figure 4.1a. The models all indicate that GCP will return to pre-pandemic levels by 2023.

The forecasts cannot be directly compared to current levels of economic data, rather they are informative in showing the relative small impact of the COVID pandemic on FBIC's regional economy. While the pandemic likely had a considerable impact on earned income, because transfer payments – unemployment insurance, direct payouts – are *added* to disposable income which helps boost regional demand for goods and services. As discussed above, the structure of the FBIC regional economy is not highly exposed to other sectors which are dependent goods and services which are sensitive to business cycle fluctuations, such as tourism. Table 4.1 shows the share of total output by sector in Blaine and Phillips Counties – data in the table will not sum to 100% as it does not include all sectors in the counties. The hospitality sector is relatively insignificant while government consumption and manufacturing dominate the Blaine and Phillips regional economy. In this particular recession,

Table 4.1: Percent of total GCP, 2019

	Blaine	Phillips
Finance	0.0%	29.7%
Transportation & warehousing	0.0%	2.6%
Information	0.0%	0.0%
Utilities	0.3%	1.3%
Manufacturing	0.3%	1.5%
Arts and hospitality	0.8%	2.5%
Construction	0.8%	4.1%
Business services	1.9%	0.0%
Wholesale trade	2.5%	0.0%
Education, health care, & social assistance	3.1%	6.3%
Mineral extraction	4.2%	6.3%
Retail trade	5.4%	6.1%
Government	25.7%	16.9%
Agriculture	29.7%	10.2%

regional output was relatively immune to the negative shocks. This coupled with above trend levels of income from the Federal economic stimulus implies growth in employment and output.

Future uncertainty arises from the level of government spending and Federal Reserve (FED) policy over the next few years. As of this writing, the Federal Government is discussing infrastructure investment, the FED may raise interest rates should current levels of inflation persist, and, closer to home, the effects of removing the additional FPUC payments. The pandemic is not yet over and new more virulent strains of the coronavirus are being introduced to the global economy which may necessitate further restrictions on economic activity. While this scenario is unlikely, IHS Markit assigns a 20% probability of a more negative scenario arising over the foreseeable future.

5 Summary

The total economic contribution of IMDG in Montana, defined as the economic activity of the IMDG, plus the additional economic activity that is induced or indirectly connected to IMDG operations, is substantial. Because of IMDG there are:

- 453 more permanent, year-round jobs;
- an additional $39.9 million in income received by Montana households, annually; and
- $66.1 million more output.

While the bulk of those economic impacts occur in the north central region of the state where most IMDG operations take place, there are measurable, significant impact in all regions of Montana. As large as these economic contributions are, they doubtless understate the full contributions of IMDG.

This study has presented a comprehensive assessment of the ultimate impact that the presence of IMDG has on the Montana economy based on the company's operations in 2020, the most recent year with full operating data available. Table 5.1 compares the current study to the previous report

Table 5.1: Growth of IMDG Comparison

	2018	2020	Growth
Total Employment (jobs)	210	453	115.7%
Gross Output (millions)	$34.2	$66.1	93.1%
Personal Income (millions)	$18.9	$39.9	111.5%
Disposable Personal Income (millions)	$16.4	$35.3	115.4%

(Note: Income and output results are in constant 2020 dollars.)

conducted by BBER in 2019 using data from 2018. In the two years since BBER last conducted an analysis of IMDG economic impacts, the company's economic footprint has increased two-fold.

The report also demonstrates the effect the COVID-19 pandemic on the FBIC regional economy. Probably the most useful forecast is the one done for employment. Employment is a "real variable" that is not necessarily influenced by price changes and random income shocks and therefore acts as a proxy for the underlying economic environment. The estimates demonstrate a relatively small impact on total economic activity in the region as a result of COVID. While this is likely due, in part, to income support, there appears to be no lasting consequence as a direct result of the pandemic. The results of the impact study suggest that IMDG's businesses support the economic activity in the region.

A Appendix: Forecasting Models

To forecast the Fort Belknap regional economy, presented in Figures 4.1 and 4.2, we used a regression forecast model based on the strategy used by New York City to predict employment and income from 2020 to 2023. Data for the estimates is collected from the Bureau of Economic Analysis, the Bureau of Labor Statistics, and IHS Markit. Data is quarterly and extends from 2000Q1 to 2020Q1. To make forecasts, the length of the data was extended to 2023Q4. The standard least squares regression model used is written as:

$$y_t = \begin{cases} \alpha + x_t'\beta + \epsilon_t \text{ if } t \leq \overline{T} \\ \alpha + \hat{x}_t'\beta + \epsilon_t \text{ if } t > \overline{T} \end{cases} \tag{1}$$

where y represents the various dependent variables used in the analysis: real personal income, employment, weekly wages, and output, as measured by gross county product (GCP), the county level analog to gross domestic product. x is a $1 \times k$ vector of independent variables used to model y. $\hat{x}$ are the IHS Markit forecasts of the vector x. ϵ is an error term and α and β are coefficients to be estimated, as is standard, it assumed that α and β are identical across each time "regime". All models are converted into natural logs and then taking "anti-logs" to retrieve levels. To account for error autocorrelation, four periods of Newey-West errors are used. $\overline{T}$ is defined as

$$\overline{T} = \begin{cases} 2019Q4 \text{ for the 2019 forecast} \\ 2020Q2 \text{ for the 2020 forecast} \\ 2021Q2 \text{ for the 2021 and 2021C forecasts} \end{cases} \tag{2}$$

Estimated dependent variables are, then

$$\hat{y}_t^f = \begin{cases} \hat{\alpha} + x_t'\hat{\beta} \text{ if } t < \overline{T} \\ \hat{\alpha} + \hat{x}_t'\hat{\beta} \text{ if } t \geq \overline{T} \end{cases} \tag{3}$$

where "$\hat{.}$"s represent estimates and $\hat{y}_t^f$ is forecast estimates.

We experimented with multiple models to until we found the "best fit". To ensure our model and interpretation was consistent, we used the same vector of independent variables across all models. We also experimented with the $ARIMA(p,d,q)$-X class of models, with little change in the results. A simple alternative forecasting method is to simply regress the dependent variables on a polynomial time trend, though this is best for estimating the long run trend and does not capture economic shocks.

The primary question is, what to include in the vector of independent variables. The regression models presented here are similar in spirit to those found in the economic growth literature. Given that we are interested in short term fluctuations, we can also link this model to international business cycle transmission in a small country. Because Lake county is a "small open economy", the US economy proxies for the world economy. Unfortunately, data limitations at the county level prevent us from using many of the variables used in these lines of research.

Our list of national level variables included:

1. Montana real GSP
2. real transfer payments for the US,

3. real transfer payments for Montana,
4. Montana population, and
5. a pandemic fixed effect.

Montana real GSP and transfer payments included two lags. These variables were selected from a list which also included:

1. real income,
2. total factor productivity,
3. recession indicators,
4. consumer confidence,
5. the unemployment rate,
6. the S&P 500 stock index ,
7. industrial production, and
8. the price of recreation.

Adding various combinations of these variables did little to effect the results as they were largely statistically insignificant.