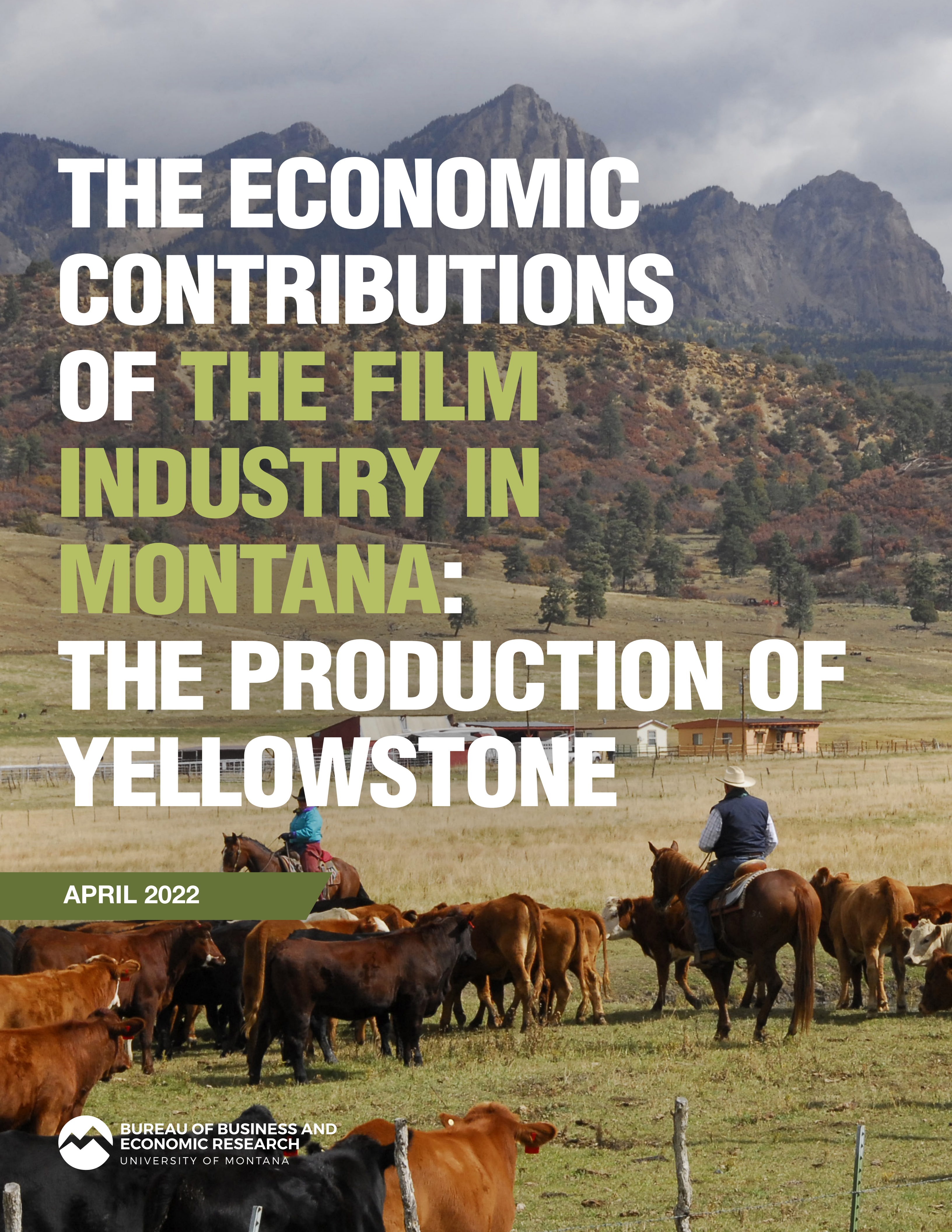

THE ECONOMIC CONTRIBUTIONS OF THE FILM INDUSTRY IN MONTANA: THE PRODUCTION OF YELLOWSTONE

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BUREAU OF BUSINESS AND ECONOMIC RESEARCH
UNIVERSITY OF MONTANA

Contents

1. Executive Summary

Film industry activity has grown significantly in Montana in recent years. Since the enactment of the Montana Economic Development Industry Advancement (MEDIA) Act on July 1, 2019, there has been a 70 percent increase in content production from ten years ago. Despite that increase, the footprint of the industry remains modest, and knowledge of the scope and nature of its activities is limited. Certainly, we are all consumers of the output of the film and entertainment industries, but awareness of what takes place to produce that content is not common in our state.

This study is aimed at addressing that situation. By examining the actual activities of a major television production carried out in the Bitterroot Valley, we not only can learn how those activities combine to make the Montana economy larger and more prosperous. We also achieve a better understanding of what a major production like the television show *Yellowstone* entails, and why its presence within the state makes such significant economic contributions.

The Bureau of Business and Economic Research at the University of Montana (BBER) was provided the full financial information associated with the recent filming of the fourth season of the Paramount television production of the *Yellowstone* series that took place in Montana over five months between October 2020 and February 2021. Using the BBER's policy analysis model, we were able to address the research question: what changes in the state economy – in terms of jobs, income, sales and tax revenues – have occurred because of the presence of this specific production?

The Economic Impact of Yellowstone Season 4 (five months): Summary

Category	Units	Impact
Total Employment..	Jobs	527
Personal Income..	$ Millions	25.3
Disposable Personal Income...	$ Millions	24.6
Selected State Revenues...	$ Millions	10.6
Output..	$ Millions	85.8
Population	People	233
Tax Credits Received...	$ Millions	16.5*

* Issued over two fiscal years

Our basic finding is that the filming of the fourth season of the television show *Yellowstone* in the Bitterroot Valley of Montana has resulted in significant gains for the state economy that extend beyond those receiving the wages and other spending of the production itself. Specifically, we find that because of the *Yellowstone* production in our state that:

- There are 527 permanent jobs in the state that would not have existed otherwise, not including the 624 Montana residents who were employed during the filming as extras.

- Montana households received an additional $25.3 million in annual income, of which $24.6 million was after-tax.

- Montana businesses and non-business organizations realized $85.8 million in additional gross receipts.

- Annual revenues of state government were higher by $10.6 million.

- The population of our state grew by 233 people, an increase that is almost totally composed of working-aged people and their families.

These economic impacts pertain to the year 2021, and can be expected to persist (and even grow, as we detail in the report) as those activities are continued in future years. These gains to the economy include the jobs and income of the production itself, but also include the effects of that direct spending on the broad spectrum of economic activity in the state.

This is not a study of the economic contribution of the entire film industry in the state, nor is it a study of the net benefits of the film industry tax credit that the state of Montana makes available as a means of incentivizing activities that take place here. But these findings can inform both of those questions.

By examining a single season of a single production in full detail, we are able to accurately and definitively trace all of the spending associated with the overall project, and thus fully account for how those who receive that spending benefit – and, in turn, re-spend a portion of what they receive in the state economy. While acknowledging that not all productions have the same spending profile, this level of detail removes the need to make assumptions about all productions that might be necessitated by an industry-wide approach.

It is also apparent that the reason why the *Yellowstone* productions have been taking place in Montana is because of the film tax credit. The decision by Utah to rescind their credit and the creation of the credit here prompted the move of the production activities from that state in 2019.

About this Study

This study was conducted by the Bureau of Business and Economic Research at the University of Montana for Paramount and the Media Coalition of Montana. The principal author of this report is Patrick M. Barkey, Ph.D. The analysis makes extensive use of financial data provided to the state of Montana as part of the application for the film tax credit offered by the state. The study has benefitted from the information and industry expertise from Paramount. All the analytical results and conclusions are those of BBER.

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 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 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 statewide, on an annual basis since 1976.

2. Introduction

While today's film and entertainment industry remains highly concentrated in southern California, the growth in movie, television and other entertainment production in states with little previous connection with the industry has grown over the last two decades. States distant from Hollywood, such as Georgia, Louisiana and Illinois, have developed significant footprints in the industry. Some of those states have continued to provide funding for tax credits at a considerably higher level than Montana.

Montana has also experienced growth in television and film in the last 10 years, with 122 productions in 2019 (Econsult Solutions, Inc., 2020). Many of those were smaller scale productions, such as one-time commercials, documentaries, single television episodes and independent features.

The spinoff of production activity to other states has been unquestionably affected by the implementation of tax credits and other incentives that are aimed at attracting film production with measures that reduce production costs. More than thirty states, including Montana, currently offer some form of tax credit, often transferrable, to studios in return for locating activities within their states (Nguyen, 2021). The public debate over the effectiveness and desirability of these policies has brought greater attention to the connection between film production and state-level economic activity. That is the motivation for this study.

When a film production takes place in Montana or any other state, there are at least three mechanisms at work that ultimately affect the size of the economy.

The first and most basic is the propagation of the spending, wages and production activities that occur as part of the activity itself. Like any business, the film industry pays wages to workers, remits payments to vendors, suppliers and consultants, and pays taxes to governments in Montana. Those people, businesses and governments receive this spending as income and, in turn, pay out a portion of it to other Montana workers, businesses and governments, and through this process the economy, as a whole, rises to a new level of activity.

Over time, the rest of the economy can be expected to respond to the new opportunities offered by the presence of new demands for products and services from the film industry. As Montana sources for specialized goods and services the industry uses are developed, a higher proportion of film industry spending is captured within the state. This indirect, new investment represents a different source of growth resulting from film production, both through the investment itself and the larger slice of production activity spending that is directed to Montana businesses.

A third mechanism is the product itself – the visual depiction of our state that increases exposure and awareness of our physical landscape, culture and history to audiences that are potentially global. While it is difficult to quantify, the image of Montana that is projected to mass audiences through film production is arguably important in selling the state as a place to visit or even relocate. It is also likely that the production activities themselves attract visitors and thus generate additional spending.

Research Approach

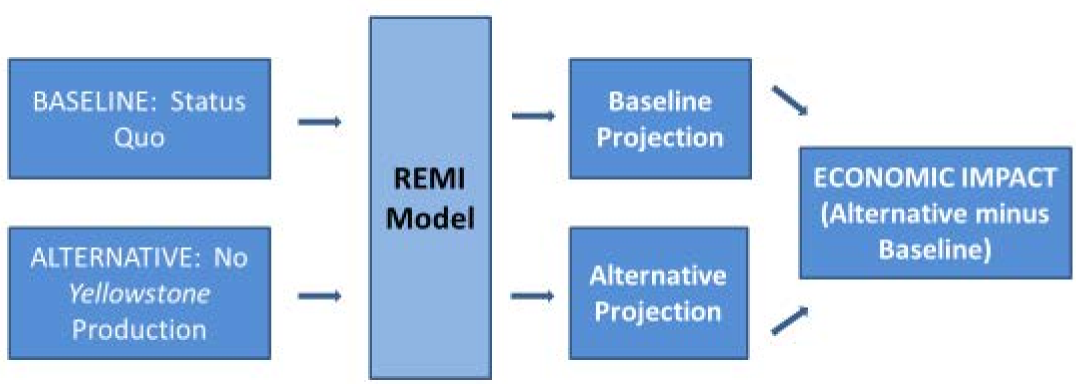
This report considers the connection between film production and overall economic activity from the perspective of a specific production – the production of the fourth season of the television show *Yellowstone* in Montana in the fall, winter and spring of 2020-21. By examining how the spending, employment and production activities of this single television production impacted the state economy we can accomplish two things. First and foremost, we can use the detailed financial records of the production, as submitted as part of the studio's tax credit application, to provide the basis for a comprehensive assessment of how its spending translated into gains in employment, income and wages of Montana businesses and households. The records allow us to explicitly focus on studio spending received by Montana workers and businesses.

By tracking and investigating the expenditures for a single season of production we can also highlight the scope and breadth of production activities, and this is the second objective of this report. Policymakers and others in a state like Montana with little film production history may be less familiar with the filmmaking process. The nature and size of the spending that occurs with a season's filming of a major television production is the main input to this study, and it will be described in detail.

Only the first of the three mechanisms described above will be examined in this report – the economic impacts associated with the studio's own production activities. Thus the findings of this report are not speculative or based on assumptions – they directly flow from the actual spending that has already taken place. The buildup of local film production infrastructure and the advertising value of films that use Montana as a backdrop doubtless would add to the ultimate impact of film production on the state economy, but impacts from those sources are not included in this report.

The basic research question addressed in this report is: what would the economy of Montana look like if the production of *Yellowstone* in the Bitterroot Valley did not take place? Since the question is counter-factual, it cannot be directly observed. The size of the hypothetical, no-*Yellowstone* state economy can be estimated with an economic model. The model is used to estimate the new "resting point" for the economy with the spending, employment, sales and taxes of the production removed, and the spending of those who receive studio spending as income similarly affected.

Figure 2.1 Policy Analysis with the REMI Model



BBER's policy analysis model (the REMI model) has been constructed and specifically calibrated for this purpose. As illustrated in Figure 2.1, the results presented in this report are a numerical comparison of two different economic projections. The baseline projection is the status quo scenario for the economy, which includes the *Yellowstone* production which has taken place. A second projection is made for a scenario that carefully removes all of the spending, employment and other economic flows that are part of the production. The model is used to trace how this spending propagates through the rest of the economy as studio spending is received as income. A comparison of these two projections reveals the total impact the *Yellowstone* production has had on the state economy.

3.The REMI Model

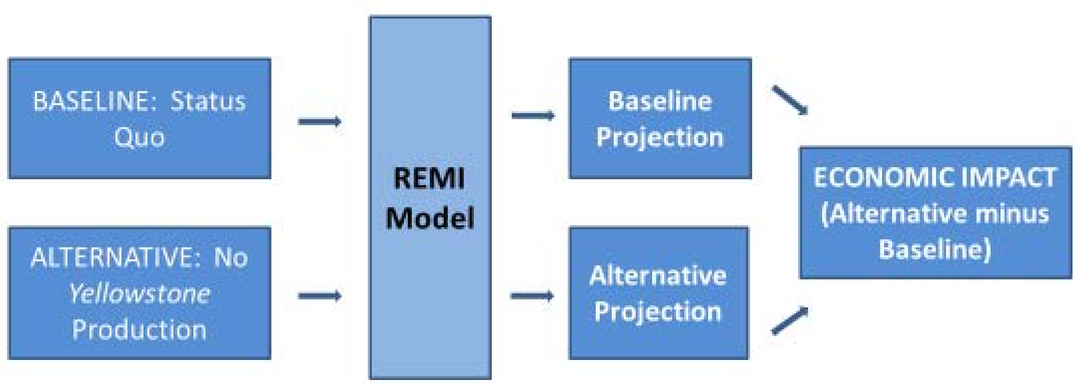
Regional economic impacts occur because of events or activities that create new expenditures within a region. “New spending” constitutes spending that is over and above existing expenditures, and which does not displace other spending elsewhere in the region. It not only adds to economic activity in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

This study utilized an economic model, calibrated to represent the interactions specific to the Montana economy, to estimate the economic impacts resulting from spending associated with the production of *Yellowstone*. 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 feedbacks 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 (Treyz, 1993).

The REMI Modeling Methodology

The basic approach of using the REMI model to produce the results for this study is illustrated in Table 3.1, below. The analysis starts with a baseline projection for the Montana economy, using the status quo assumptions, which includes the production of *Yellowstone*. Next, the analysis employed the REMI model a second time, simulating an alternative scenario where the production activities are removed.

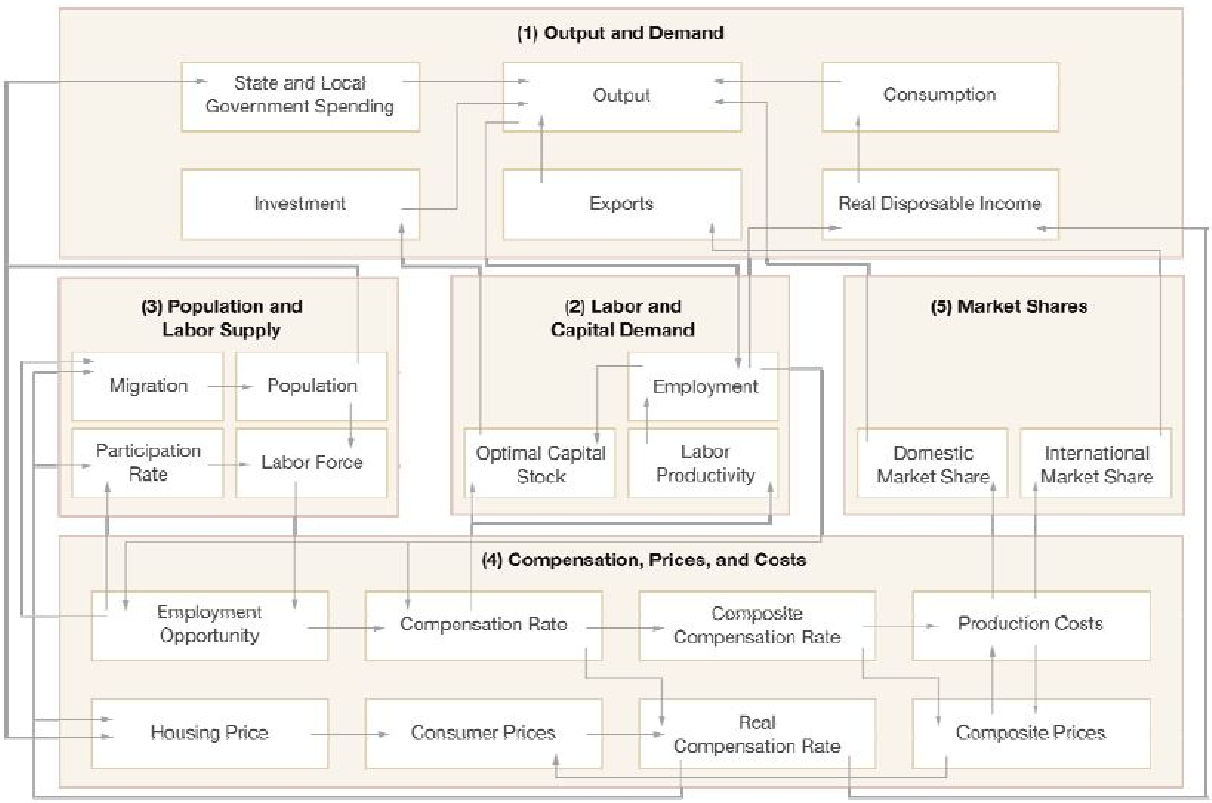
Figure 3.1: Policy Analysis Using the REMI Model



The difference between the baseline scenario and the no-*Yellowstone* scenario constitutes the magnitude of the impact of the show's production on the state economy.

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 state economy: 1) Output and Demand; 2) Labor and Capital Demand; 3) Population and Labor Supply; 4) Compensation, Prices and Costs; and 5) Market Shares. These linkages are shown in Figure 3.2, below.

Figure 3.2. Schematic Model of REMI Linkages



The differences in production, labor demand, and intermediate demand associated with the presence of the television production 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 new "resting point" for an economy with *Yellowstone* productions taking place.

The underlying philosophy of the REMI model is that regions throughout the country compete for investment, jobs, and people. When events occur in one region, they set off a chain reaction of events across the country 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 inter-dependence 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. Simplified illustrations of the schematic model in Figure 3.2 are provided on the following pages, in figures 3.3 through 3.7.

Figure 3.3. Output Linkages

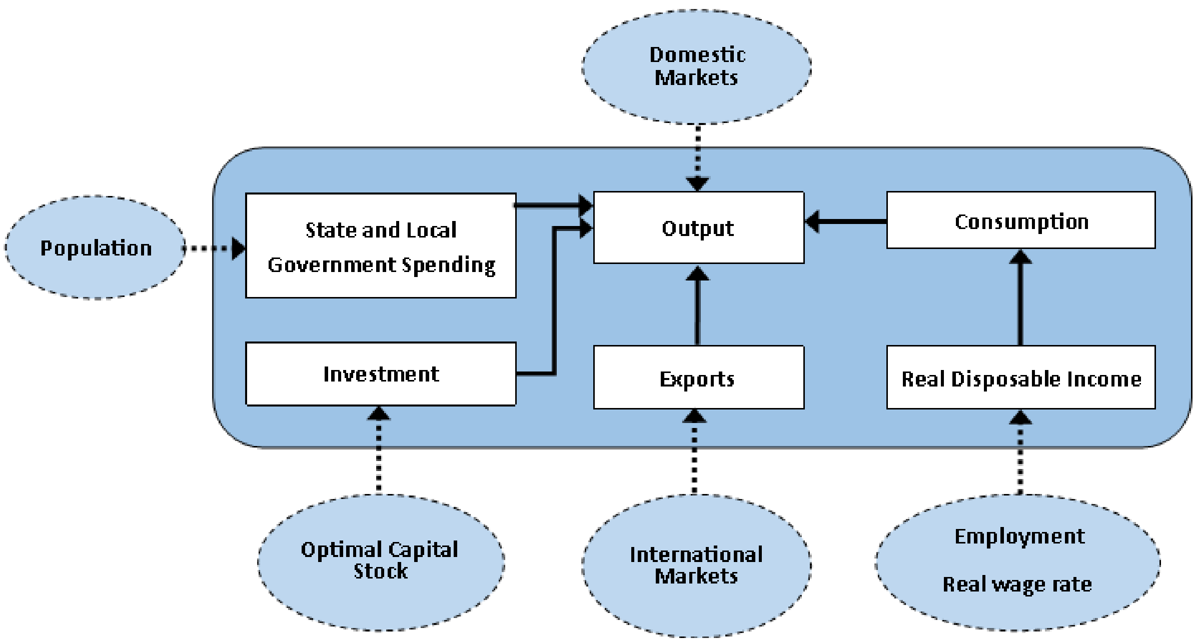


Figure 3.4. Labor and Capital Demand Linkages

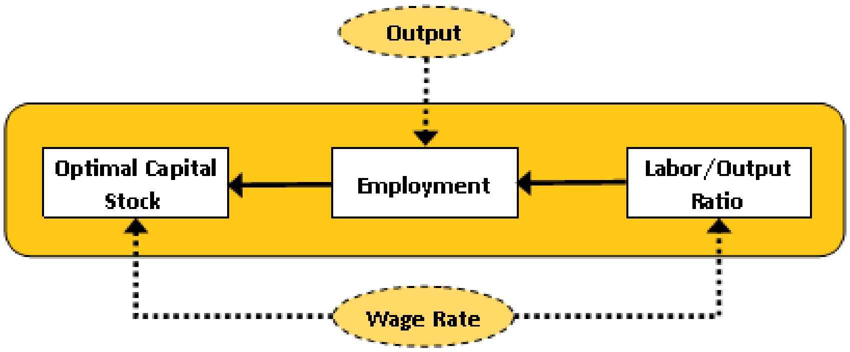


Figure 3.5. Demographic Linkages

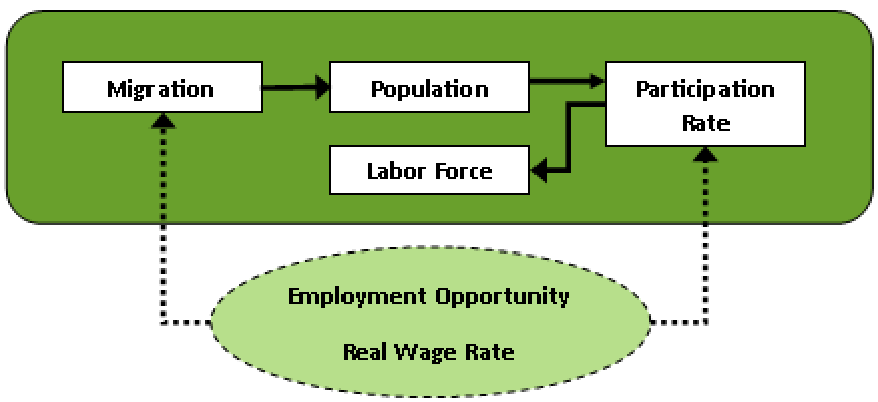


Figure 3.6. Wages, Prices and Production Costs Linkages

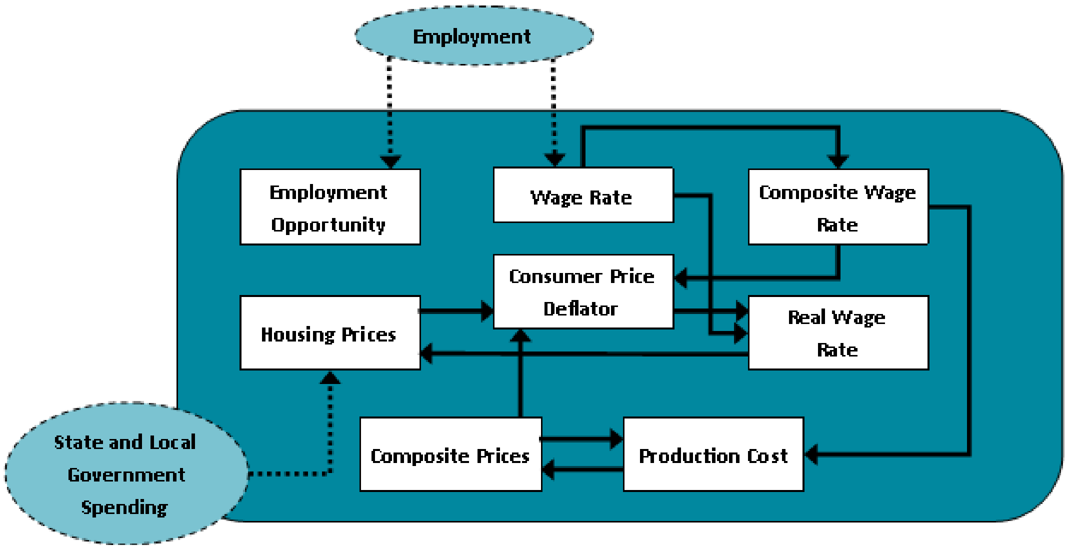
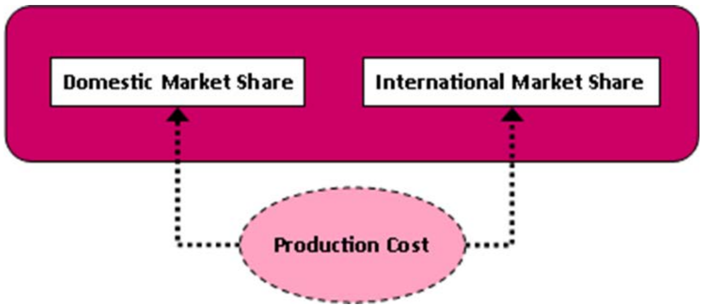


Figure 3.7. Market Share Linkages



As powerful and flexible as this tool is, the output it provides is only as good as the inputs provided. The majority of the work for 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 occur with the production of *Yellowstone*.

4. The Direct Economic Contribution of the Production of *Yellowstone*

The economic impact of the production of *Yellowstone* in Montana may be thought of as consisting of three pieces, which sum to the total:

- The direct impacts, which consist of the spending, employment and production of the studio itself;

- The indirect impacts, which represent the spending that is closely associated with the production, but not done by the studio itself. An example of indirect spending would be the spending associated with *Yellowstone* workers who visit places in Montana on weekends or off times.

- The induced impacts, which consist of the second and subsequent rounds of spending and employment that occurs as direct and indirect spending is received by businesses, households and governments.

This section considers the direct and indirect impacts. In the analysis flow, these impacts are removed from the economy to produce an alternate, no-*Yellowstone* scenario. The economic model (REMI) then estimates induced impacts and thus arrives at the total impact.

Summarizing the full range of production activities that go in to the making of a major studio television series is a daunting task. A valuable resource for this study has been the requirement of the Montana film tax credit program for those who apply for credits to supply detailed information on expenditures carried out. Thus, we can divide the spending by *Yellowstone* into two broad categories: those that qualify in the calculation of the state tax credit, and those that do not. The latter includes activities that take place outside Montana, such as transportation and post-production editing. Goods and services purchased from out-of-state vendors and suppliers generally fall into the non-qualified category as well.

Employment

The production of season 4 of the *Yellowstone* television series employed a total of 116 Montana residents in the Montana-based activities associated with the filming. These workers worked an average of approximately 11 40-hour weeks and earned compensation of about $3.1 million. Those employed include both those considered “above the line,” or ATL (writers, directors, actors and producers) and those below the line (BTL), such as camera operators, grip operators, hairdressers, wardrobe consultants or other workers.

There were also hundreds of out-of-state workers, including the cast of the show, who worked in the state as well. While clearly integral to the final product, for purposes of measuring the direct impact of *Yellowstone* to the Montana economy, their jobs and income are not included. The assumption is that they leave the state when the filming and associated activities are concluded, and the spending power of their compensation leaves with them, with two important exceptions.

Since the income earned in Montana is subject to state taxes, we include an estimate of taxes paid based on their compensation. As visitors to the state, we also include their spending while they are in the state (for items not covered by the studio), based on the number of off-days and visitor spending profiles developed for the overall Montana visitor population (Grau, 2020).

In addition to these employees, there were 624 Montana residents employed as extras during the production of the season. Since the duration of their work was typically a day or two (average compensation was less than $500), we have chosen not to count their jobs in the totals reported here. However, the approximately $300 thousand in compensation is included in the direct impact assessment.

Inputs and Vendor Spending

The nature, variety, and magnitude of spending on materials and services as part of the *Yellowstone* production is depicted in the detail shown in Table 4.1. The Table shows production spending that is received by Montana vendors and businesses and thus is considered qualified for tax credit computation purposes.

Table 4.1 Qualified Spending for *Yellowstone* Season 4 by Category

Category	Expenditure
BTL Lodging	$3,700,333
Per Diem	$2,229,874
Location Expenses	$1,254,443
BTL Rental Cars	$996,143
Production Office Rental	$928,671
Site Fees and Rentals	$858,258
Talent Hotel	$639,629
Other Spending	$460,179
Fuel	$450,215
Kit Rentals	$384,767
Security	$379,319
Catering	$336,850
Talent	$329,242
Other Transportation	$277,833
Production Craft Service	$246,621
ATL Lodging	$222,457
Animals Expenses	$206,399
Set Dressing Purchase and Rentals	$196,701
Set Build - Materials and Supplies	$172,524
ATL Rental Cars	$166,259
Location Supplies and Rentals	$163,343
Props and SPFX Purchases and Rentals	$163,079
Dolly and Crane Rentals	$161,371
Wardrobe Purchases and Rentals	$118,798
Vehicle Rentals	$103,658
Parking	$91,686
Working Meals	$74,185
TOTAL	$15,312,840

As can readily be seen from the Table, the qualified spending of more than $15 million in the communities where filming and other production activities take place is a considerable volume of business for many types of goods and services. More than $4.5 million was spent on accommodations in Montana, with considerable amounts also expended on food, transportation, security and location and set materials.

Significantly more is spent as part of the overall production than what is listed in Table 4.1. The bulk of this spending takes places outside the state or uses out-of-state vendors, most prominently in post-production and related activities that occur elsewhere. These expenditures do not qualify as part of the base for the Montana tax credit application process, but nonetheless can impact the state economy, particularly if transportation and logistics services in Montana are utilized. We have not included those impacts as part of the direct impact of *Yellowstone* production.

Other Considerations

There are at least two indirect impacts of *Yellowstone* production that arguably should be included as part of the no-*Yellowstone* scenario that we construct for this analysis. The first is the growth in more film industry infrastructure and specialized services in Montana that would result. This growth has already taken place to a limited extent, but it is attributable to past film industry activity and not directly linked to the *Yellowstone* series. Yet the scale and potential duration of *Yellowstone* make it likely that some increase in investment and other support services has occurred that is not part of spending conducted by the studio itself. We have not included this in the analysis.

A second kind of indirect impact comes from the public relations value of having a television series distributed to a global audience that uses Montana as an integral part of the story. The imagery, the culture, and the characters of the show feature Montana and add to its desirability as a visitor destination. A no-*Yellowstone* scenario for the state economy removes that potentially important messaging. We do not attempt to quantify or incorporate this impact in the analysis.

Visitor spending of a different sort is included – the spending of the non-Montana employees of the production. Using a spending profile developed to estimate spending by the overall Montana tourist population (Grau, 2020), we estimate spending by non-Montana employees during weekends and other off times in the state.

This is the only instance in which spending associated with the production activity is estimated – in all other respects, the direct contributions of the *Yellowstone* production activities are derived from financial records of actual expenditures that took place. We now turn to how those expenditures affect the overall economy.

5. The Economic Contributions of the Production of *Yellowstone*

This analysis considers two economic scenarios for the state of Montana. The baseline, status quo scenario, and a scenario where the production of the *Yellowstone* television series in Montana does not take place. In this no-*Yellowstone* scenario, all of the spending, employment, sales and tax payments described in the previous section do not occur, and the businesses, workers and governments that receive that spending as income do not hire the workers or make the purchases that income supported. The end result is a smaller economy.

The difference between the baseline and the alternative scenarios is the total impact of the fourth season production of *Yellowstone* in Montana. We present those impacts in this section of the report.

Table 5.1 The Economic Impact of *Yellowstone* Season 4: Summary

Category	Units	Impact
Total Employment..	Jobs	527
Personal Income..	$ Millions	25.3
Disposable Personal Income...	$ Millions	24.6
Selected State Revenues..	$ Millions	10.6
Output..	$ Millions	85.8
Population	People	233

Our basic finding is that the production activities associated with *Yellowstone* in and around the Bitterroot Valley make a considerable economic contribution to the entire state. The jobs, income, production and government revenues that are ultimately supported by the television show production are well in excess of those of the production itself, and come about because of the re-spending of wages, purchases and payments and tax revenue in the rest of the state economy.

Specifically, we find that:

- There are 527 more jobs in the economy because of the production activities associated with the *Yellowstone* production. These jobs include the 116 Montana residents employed by the studio, but do not include the 624 Montanans who worked as extras during the filming.

- Montana households receive $25.3 million in annual personal income because of the *Yellowstone* production, of which $24.6 million is after-tax income, available for spending.

- Montana business and non-business organizations realize an additional $85.8 million in annual gross receipts (output) that is due to production activities.

- There are 233 additional people who live in Montana because of the *Yellowstone* production, reflecting working aged families and their children who locate here due to better economic opportunities.

- State government collects an additional $10.6 million in annual tax and non-tax revenues because of *Yellowstone* production activities.

It is important to note that these changes in the economy occur because of the single season of production of the television series in Montana. Subsequent seasons of production of the show would produce impacts of a similar magnitude in future years.

This sizable economic impact from television show production comes about for two related reasons. The first is the scale of the activity. The fourth season of *Yellowstone* ultimately spent more than $70 million within the state. Although the largest share of this total went to non-Montana workers (including the cast, producers, writers and directors), their spending power was nonetheless in the state during the months of filming and their income was subject to Montana tax.

There is also a high "made in Montana" component to the spending on the production. Goods and services purchased from Montana vendors were heavily weighted towards food, accommodations, and payments to property owners and governments for use of locations and other locally sourced items. There was also considerable spending on specialized filmmaking goods and services that were sourced from outside the state, but since it did not qualify as part of the studio's tax credit application, this spending was not included in the analysis.

The nature, magnitude and scope of the economic contributions made to the state by the production of *Yellowstone* can be further appreciated by providing more detail on how production activities affect different measures of economic activity.

Employment Impacts

The 527 jobs that are ultimately supported in the Montana economy because of the production of *Yellowstone* include many jobs that have no direct connection with the spending of the studio itself. This is readily seen from the breakdown of job impacts by major industry classification shown in Table 5.2. The largest employment impacts of the *Yellowstone* production occur in the industry itself, where 120 jobs are added. But the table makes clear that the spending and employment directly linked to the studio induces growth throughout the economy. The employment gains are largest in the accommodation and food services industry, which adds 85 new jobs. But there are also measurable increases in industries not directly linked to *Yellowstone* production, including health care, government, construction and retail trade. These jobs reflect the propagation of studio spending to the rest of the economy.

As is the case with the economy as a whole, the jobs that come about due to the presence of the *Yellowstone* production activities in the state are a mixture of full-time, part-time, seasonal and year-round jobs. Jobs in industries such as retail trade and accommodations and food are more likely to be part-time, whereas manufacturing, government and professional services jobs are dominated by full-time positions.

Table 5.2 Employment Impacts

Industry	Impact
Construction	66
Manufacturing	5
Motion picture and sound recording industries	120
Retail Trade	47
Transportation and Warehousing	18
Professional and Technical Services	24
Administrative and Waste Services	18
Health Care and Social Assistance	21
Arts, Entertainment, and Recreation	26
Accommodation and Food Services	85
Other Services, except Public Administration	17
Other Private	50
Government	29
TOTAL	527

Personal Income Impacts

Further insight on the nature and magnitude of the economic impacts of the production of *Yellowstone* on the Montana economy can be seen from the detail on the impacts on income received annually by Montana households. Personal income, as defined by the U.S. Bureau of Economic Analysis, is dominated by income from employment, or earnings, and the income impacts of *Yellowstone* shown in Table 5.3 reflect that as well. Earnings impacts reflect more than the increased wages paid out, however. They also include benefits, owner income for non-incorporated businesses and pension and social security payments by employers.

There are also impacts on income that are not directly related to employment. Since an economy that includes the production of *Yellowstone* is larger and more populous, there are smaller, but significant impacts on property income as well. Dividends, interest, rent and royalties received by Montana households are, taken together, $1.8 million higher annually because of the film production activity that takes place.

Table 5.3 Personal Income Impacts (millions of dollars)

Category		Impact
Total Earnings by Place of Work		27.2
	Total Wage and Salary Disbursements	18.3
	Supplements to Wages and Salaries	4.7
	Employer contributions for employee pension and insurance funds	3.0
	Employer contributions for government social insurance	1.7
	Proprietors' income with inventory valuation and capital consumption adjustments	4.2
Less:	Contributions for government social insurance	3.6
	Employee and self-employed contributions for government social insurance	1.9
	Employer contributions for government social insurance	1.7
Plus:	Adjustment for residence	(0.0)
	Gross In	0.2
	Gross Out	0.2
Equals:	Net earnings by place of residence	23.5
Plus:	Property Income	1.8
	Dividends	0.7
	Interest	0.7
	Rent	0.4
Plus:	Personal Current Transfer Receipts	(0.0)
Equals:	Personal Income	25.3
Less:	Personal Current Taxes	0.7
Equals:	Disposable Personal Income	24.6

Output Impacts

A larger economy that is due to the production of *Yellowstone* also entails more production of goods and services and more business revenue. Since the impact of film production activities propagates across the spectrum of state economic activity, these output impacts also have a wide footprint.

For purposes of this report, economic output is defined as gross receipts to business and non-business organizations, with the exception of the retail and wholesale trade industries, where markup is used instead. Thus, output is a measure of the impact of *Yellowstone* on the annual sales of Montana businesses and other organizations.

The output impacts of *Yellowstone* show how the film production activities affect many different parts of the Montana economy. While the industry with the largest impacts is the film industry itself (the $26.8 million impact estimate is an imputed measure that is estimated by the REMI model), there are significant impacts elsewhere in the economy. The largest of these shown in Table 5.4 occur in construction, followed by accommodation and food services, retail trade and health care. There are also sizable impacts in rental and leasing businesses, which are part of the other private category shown in the table.

These impacts have a simple interpretation from the point of view of Montana businesses – they show the increase in gross receipts (sales) that occurs in their respective industries because the film production activities for *Yellowstone* take place in Montana.

Table 5.4 Output Impacts (millions of dollars)

Industry	Impact
Construction	10.1
Manufacturing	2.4
Motion picture and sound recording industries	26.8
Retail Trade	5.2
Transportation and Warehousing	1.6
Professional and Technical Services	3.1
Administrative and Waste Services	2.0
Health Care and Social Assistance	4.4
Arts, Entertainment, and Recreation	1.1
Accommodation and Food Services	8.1
Other Services, except Public Administration	1.3
Other Private	16.3
Government	3.4
TOTAL	85.8

Revenue Impacts

The larger economy due to *Yellowstone* grows the base for tax and non-tax revenues received by state government. This is particularly true for a major motion picture production, which involves highly compensated actors, producers, directors and other talent that pay state income taxes on what they earn in the state. Revenue impacts reflect more than the film activity itself. They also result from higher population, higher spending, and more income across the entire economy.

The categories of state revenue from tax and non-tax sources shown in Table 5.5 add up to an increase of $10.6 million annually that is ultimately due to the production activities for *Yellowstone* that take place in the state. The categories shown in the table are taken from the Census Bureau's Census of Government publication (U.S. Census Bureau, 2021).

Some of the impacts shown in the table are due to population increases and increased demand for government goods and services, and the increases in earmarked funds for things like highways and health care that follow. Others reflect increases in state taxes that flow, at least partially, into general fund revenues. These include personal and corporate income taxes as well as selective sales taxes. The latter include the sizable tax contributions made by the studio's spending on accommodations and rentals.

Table 5.5 Selected State Revenue Impacts (millions of dollars)

Category	Impact
Intergovernmental Revenue	2.0
Selective Sales Tax	1.1
License Taxes	0.2
Individual Income Tax	3.3
Corporate Income Tax	0.2
Other Taxes	0.3
Current Charges	0.4
Miscellaneous General Revenue	0.3
Utility Revenue	0.0
Liquor Store Revenue	0.1
Insurance Trust Revenue	2.7
TOTAL	10.6

Compensation Impacts

A closer examination of the impacts of *Yellowstone* on compensation paid to Montana workers reveals more about the nature of the jobs that are supported by the film production activity in the state. As shown in Table 5.6, the $27.2 million that is paid in total earnings (which reflect wages, benefits and owner income) to Montanans because of the production of *Yellowstone* yields average annual earnings of $51,571 for each new job supported by the filming of the show.

Thus, while the jobs in Montana connected directly and indirectly with the production are highly variable in terms of their duration, hours worked and rates of pay, in terms of the total impact of all jobs created, their average earnings are well in excess of the state average compensation for all jobs ($44,020 in 2021).

Table 5.6 Compensation Impacts

Category	Units	Impact
Wages and Salaries	$ Millions	18.3
Compensation	$ Millions	23.0
Earnings	$ Millions	27.2
Earnings per Job, New Jobs	$ Dollars	$51,571

Population Impacts

A larger economy also presents more economic opportunity. This, in turn, attracts both investment and people. While population impacts of new economic activity evolve more slowly than other kinds of impacts, the larger economy that results from the production of *Yellowstone* during the same year it takes place is significant. As the age breakdown shown in Table 5.7 shows, the 233 additional people attracted or retained within the state is heavily dominated by working aged people and their children.

Higher population is another mechanism for propagating *Yellowstone* impacts throughout the economy. More people within the state creates greater demand for goods and services. This is particularly so for government goods and services. The increase in the number of school-aged children produces greater demand for local public schools. Other impacts on local infrastructure are important as well.

Table 5.7 Population Impacts

Age Cohort	Impact
Ages 0-14	57
Ages 15-24	49
Ages 25-64	127
Ages 65+	1
Total	233

Discussion

This section of the report has presented the changes to the state economy that have ultimately occurred due to the presence of the *Yellowstone* television program's production activities in the Bitterroot Valley in greater detail. By doing so, we are able to better communicate how the fact that those activities took place in Montana added to the size of the economic pie. Job growth, income growth, and population growth were impacted by the presence of *Yellowstone*, and in many cases that growth had only an indirect connection to the spending by the studio.

While not formally analyzed, this report gives support to the notion that these economic gains will continue into future years, should the production activities for the show go on for additional seasons as before. Alternately, we could say that any production of a similar scale and scope to *Yellowstone* – by another studio, or for a different show or media product – could be expected to have impacts that are of a similar order of magnitude.

Should that occur, and Montana becomes a more regular site for large scale film production of the size and scope of *Yellowstone* in future years, then the exclusion in this report of potential new investment in film production infrastructure in our state to serve the industry's needs becomes more important. Even not taking that into account, the impacts of the studio's own activities are sizable.

6. Conclusion

This report presents the findings of an analysis of the economic contributions of the production of the fourth season of the television show *Yellowstone*. This focus on a single season's activity in filming and producing the show in the Bitterroot Valley of Montana allows us to take advantage of the extensive financial records of production activity filed with Montana as part of the studio's application for film tax credits. Thus the results we present are based on actual expenditures that have already taken place. Using this data and the BBER policy analysis model (REMI) that has been constructed and calibrated for this purpose, we are able to estimate how the overall economy has benefitted from the spending and employment associated with the production.

Our basic finding is that because of the production of the television show, the Montana economy is larger, more prosperous, and more populous than it would have been otherwise. Specifically, we find that because of the production of the fourth season of *Yellowstone* in Montana:

- There are 527 additional jobs in the state, with average earnings of $51,171 per year for each new job, well in excess of the state average compensation per job of $46,020 per year. Jobs created by the production come from a wide range of industries, including construction, retail trade, accommodations and food and government.

- Montana households collectively received $25.3 million more in annual personal income, with most of the increases in income coming from employment.

- Montana businesses and non-business organizations received $85.8 million more in sales (gross receipts), with gains occurring across many different industries, including construction, rental and leasing companies and accommodations and food companies.

- Revenues to the state of Montana from tax and non-tax sources ultimately were $10.6 million higher as a result of the fourth season of *Yellowstone* being produced in Montana, reflecting the larger size of the tax base, population and overall economy that was the result.

In producing these findings, we have had the opportunity to more completely describe the spending and employment that took place as part of the production activity. The $15.3 million in spending during the season that qualified as part of the studio's tax credit application, as well as the 116 Montana employees, in addition to the 624 Montana residents who were used as extras during the filming, are the reasons why the overall economic contributions of *Yellowstone* are so substantial.

7. References

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