MONTANA BUSINESS QUARTERLY

MONTANA'S ECONOMICS MAGAZINE // WINTER 2020

2021 MONTANA ECONOMIC REPORT

ANALYSIS AND ASSESSMENT OF
MONTANA'S ECONOMIC PERFORMANCE

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Bruce Leibold protests Montana's mask mandate in front of the Mike Mansfield Federal Building and U.S. Courthouse in Butte. (AP Photo, Meagan Thompson)

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BUREAU OF BUSINESS AND ECONOMIC RESEARCH
UNIVERSITY OF MONTANA

The Bureau of Business and Economic Research has been providing information about Montana's state and local economies for more than 70 years. Housed on the Missoula campus of the University of Montana, the bureau is the research and public service branch of the College of Business. On an ongoing basis the bureau analyzes local, state and national economies; provides annual income, employment and population forecasts; conducts extensive research on forest products, manufacturing, health care and child well-being; designs and conducts comprehensive survey research at its on-site call center; presents annual economic outlook seminars in cities throughout Montana; and publishes the award-winning Montana Business Quarterly.

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COVER
Illustration of a businessman using an umbrella for protection from COVID-19. (Santima Suksawat)

MESSAGE FROM THE DEAN OF THE COLLEGE OF BUSINESS

It is an honor to address the readers of this special edition of the Montana Business Quarterly featuring the Montana economic report. We all have a very important stake in helping the Montana economy thrive, and there is plenty of thought-provoking material here to helps us better understand the challenges and opportunities in the year ahead.

We pride ourselves at the College of Business at the University of Montana in preparing our students for the future. The year 2020 and the pandemic accelerated many trends, making the future arrive a bit quicker. I am proud of the way our students and my colleagues adapted to and embraced the combination of in-person and remote instruction. Although challenging, it has been rewarding to continue our emphasis on student-centric learning in order to help them achieve successful careers.

As you glance through this issue, you will read about the industries that are the engines of our state economy, as well as what we can expect in the coming year. I have always been a fan and a regular attendee of the Bureau of Business and Economic Research's economic outlook seminars, and this year's program looks like one of the best ever.

As dean of the College of Business, I am already working with many of you to bring your stories and skills into our classrooms as we prepare our future leaders. The talents, resourcefulness and dedication of Montana's businesses are outstanding. This has been demonstrated more than ever over the past 10 months. I look forward to working with you in the coming year in continuing to support these businesses.

Suzanne Tilleman, Ph.D.
Dean
College of Business at the University of Montana

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THE YEAR IN REVIEW

Statewide Economic Performance

Is Montana's Economic Hole Shallower Than the Rest?

BY PATRICK M. BARKEY

The news that Montana's economic performance in 2020 will undoubtedly go down as the worst in its post-war history will not surprise many. The swift onset of the global pandemic cratered economic activity here in the spring, just as it did in most of the world. Yet, however severe our economic downturn has been, evidence continues to paint it as milder that what other states have suffered. What that means for our prospects for getting back to our pre-pandemic growth trajectory is just one of many difficult questions ahead for leaders and policymakers to assess.

The speed of the economic collapse of March-April was a formidable challenge for traditional economic sources of information to keep up with. State and regional data, which are slower to arrive, were not able to capture the magnitude of a downturn that ultimately sent national economic output down by 9% (a 31.4% annualized rate) in the second quarter as it was occurring. But data on payroll employment and wages can now tell us how Montana's economy weathered the storm.

Over the first two quarters of last year, Montana suffered a 8.2% payroll job decline, amounting to almost 39,000 jobs. The job losses were disproportionately felt in two industries – accommodations and food (28.1% decline), and arts and entertainment (27.3%) – that were most challenged by physical distancing. With the exception of government, however, no industries were spared. Health care's job declines were especially surprising, given that the downturn was produced by a health crisis.

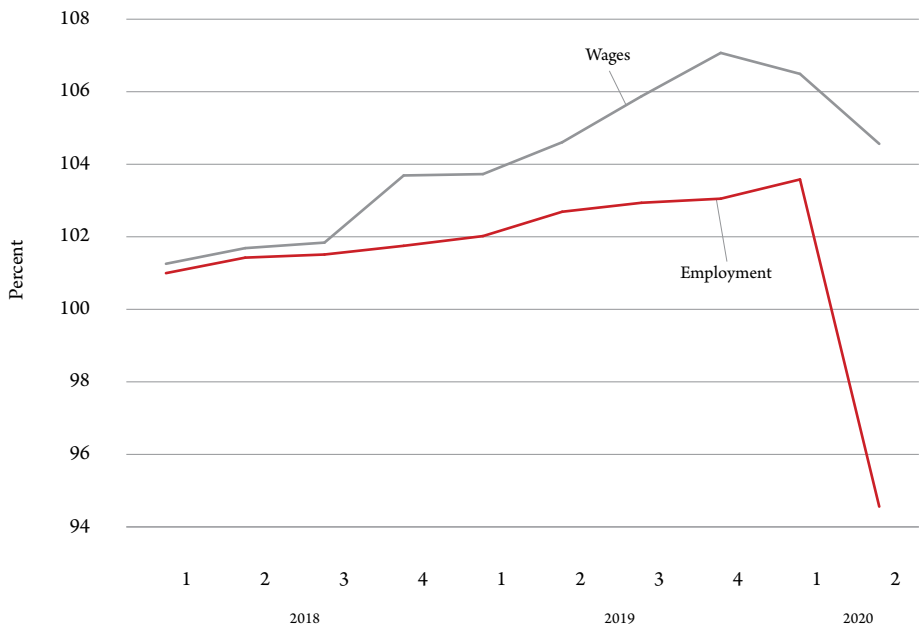
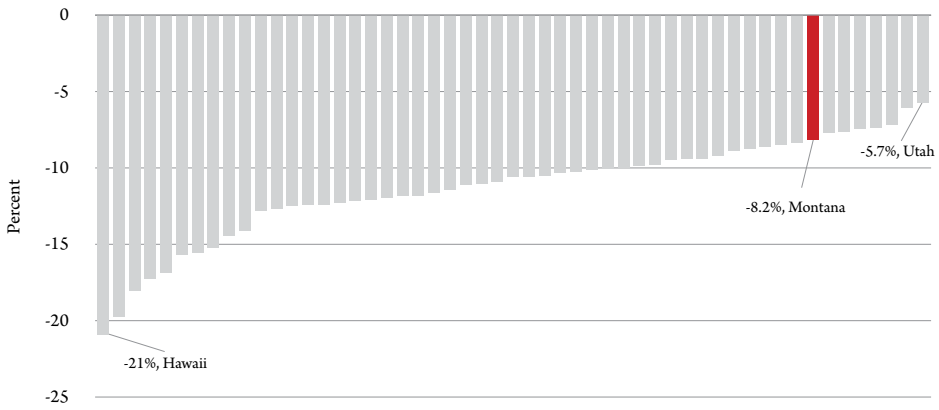


Figure 1. Wages and employment, Montana, 2018Q1-2020Q2, seasonally adjusted index, 2017Q1=100. Source: Quarterly Census of Employment and Wages.

Figure 2. Employment decline by state, percent, 2019Q4-2020Q2., seasonally adjusted. Source: Quarterly Census of Employment and Wages.



Yet with the benefit of enough hindsight to allow comprehensive data to arrive, two things have become clear about Montana's recession.

The first is that it has been more of a jobs recession than an income recession. Lost in the focus on the job loss tally is the fact that: a) the types of jobs lost have tended to be on the lower paying end of the earning spectrum, and b) hours worked by Montanans who have been fortunate enough to retain their jobs has, in many cases, spiked sharply upward. The contrast in the magnitude of the job loss and wage loss depicted in Figure 1 shows this clearly.

The second surprise is that Montana's job setback, while severe, has been milder than all but a handful of predominantly Mountain West states, as shown in Figure 2. To say that this has been a surprise is an understatement. The closure of the international border, the huge declines in air travel and the turbulence in oil market seemed to be formidable headwinds for many of our key industries. Yet the opportunities that the COVID-19 pandemic has presented Montana businesses, which are too numerous to list, have helped fill at least part of the hole.

The state economy enters the new year with both momentum and uncertainty. Many forecasters say that the future all depends on the behavior of the virus, but the continued rebound in the national economy in the face of a late fall surge in infections makes it clear that the connection between economic growth and public health is not that simple anymore.

Patrick M. Barkey is director of the Bureau of Business and Economic Research at the University of Montana.

The Performance of the BBER Forecast

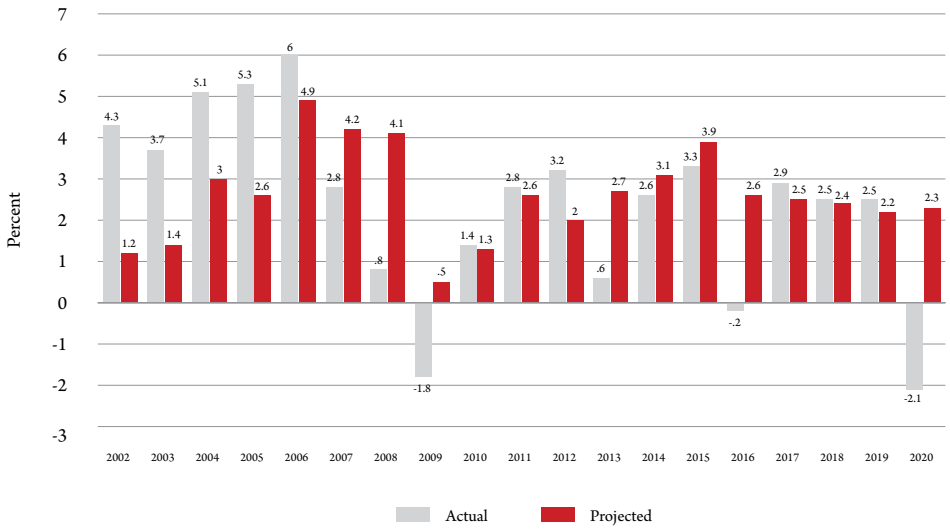
Economic Shocks Challenge Forecast

BY BRANDON BRIDGE

The year 2020 has been a particularly challenging year for economic forecasts. Forced business closures and massive unemployment around the country were generally not anticipated by forecasters prior to February 2020, and they were certainly not anticipated by the BBER forecast.

This is evident in Figure 1, which shows that the difference between actual and projected inflation adjusted nonfarm earnings is the highest it has been since 2002. The BBER forecast for 2020 was a growth rate of 2.3%. While data is not yet complete for 2020, it appears that growth will come in around -2.1% percent. This results in a difference between predicted and actual growth of 4.4%. Also, though the data is sure to be revised in coming years, the growth rate for 2020 is estimated to be worse than the Great Recession of 2008-09.

Figure 1. Actual and projected change in real nonfarm earnings, Montana, 2002-20. Sources: Bureau of Business and Economic Research, U.S. Bureau of Economic Analysis.



The accuracy of the BBER forecast over the years continues to adjust with recurring revisions of historical data on economic growth. The most recent revision to 2016 and 2019 data reduced the accuracy of the BBER prediction by 0.1 percentage points in both years. The data revision for 2016 shows growth coming in 0.1% lower than previously calculated, while 2019 grew at 0.1% higher than previously calculated.

Forecasted growth since 2002 has missed the mark by an average of 1.63 percentage points per year. This is higher than the 1.47 percentage point average deviation that was reported last year. Due in small part to the data revisions, this is primarily a reflection of the large disparity between the currently predicted and previously projected totals for 2020, which amount to a greater disparity than the previous five years combined. The Great Recession is further behind us, and the period between 2010 and 2019 exhibited relatively low variance and hence less unpredictability for the forecast on average. Now with the 2020 economic upheaval, higher variance in coming growth rates is again anticipated to manifest itself, creating further challenges for the BBER forecast.

These recent data points will continue to be revised in the coming years, and the relatively stable growth experienced through much of the previous economic expansion has proven to not remain stable nor predictable forever. But the accuracy in the BBER forecast is something we will continue working to improve.

Brandon Bridge is an economist and director of forecasting at the Bureau of Business and Economic Research at the University of Montana.

Montana's Cities and Regions

Seeing Beyond the Pandemic's Grip

BY PATRICK M. BARKEY

COVID-19's icy grip left no corner of the state's cities and regions untouched, yet it has unfolded in a way that bears little resemblance to previous economic downturns. A recession that has humbled once thought to be recession proof industries, like health care, while at the same time pumping up demand for housing and durable goods – which generally suffer when economic uncertainty spikes – throws a curve ball at historical patterns of economic vulnerability.

There have been two distinct phases of recent regional economic performance in Montana: pre- and post-COVID. The post-COVID regional pattern does not display the same degree of heterogeneity that was experienced in growth before the pandemic came on. The declines in payroll employment and in wages that occurred in the first two quarters of 2020 for the state's largest urban areas, shown in Figure 1, display only slight differences between areas in what was a very painful contraction.

All of the 2020 declines shown in the figure were historically large. The small differences between cities largely stem from the relative size of the accommodations and food services in their local economies, which bore the brunt of COVID-related business declines. Public administration, which generally fared better, is another factor explaining regional differences, with Helena performing slight better in this regard.

On the other hand, the pre-COVID patterns of growth between Montana's larger counties continue to exhibit considerable variability. The growth in inflation-corrected (real) nonfarm earnings in 2019 across the state's seven largest counties, shown in Figure 2, divides the urbanized counties into three groups.

The High-Flyer: Gallatin County

Gallatin County in southwestern Montana has been a high growth area for the better part of two decades, excepting the real estate collapse that toppled its growth during the Great Recession. Inflation-corrected nonfarm earnings, a good measure of local economic activity, has averaged annual growth of 6.3% since 2013. Only Madison County, immediately adjacent to Gallatin to the west, topped that growth mark over the same time period.

The Bozeman area's strength in recent years has received a boost from high-tech, professional services and manufacturing growth. This adds to its base as a university town and as gateway to the Big Sky Ski Resort and Yellowstone National Park. Its airport, which is the state's largest, has recovered 50% of the passenger volume lost when the pandemic first exploded, the strongest rebound in the state.

The Above Average: Flathead, Missoula, Yellowstone Counties

Three counties that differ considerably between each other have generally grown faster than the state average, although growth in Yellowstone County has tailed off of late. The factors driving their growth differ as well.

For years, Flathead County's growth was mentioned in the same breath as Gallatin County, but its growth has fallen back in recent years. It shares Bozeman's status as a gateway to a major national park (Glacier National Park lies just to the east) and is also home to a nationally recognized ski resort. After a big growth burst in health care in 2016 that was due in part to the expansion of Kalispell Regional Hospital, its health care sector has underperformed.

Overall growth in Flathead County has averaged 3.8% since 2013, second best of the state's largest urban areas. Spending by nonresident visitors eclipsed wood products

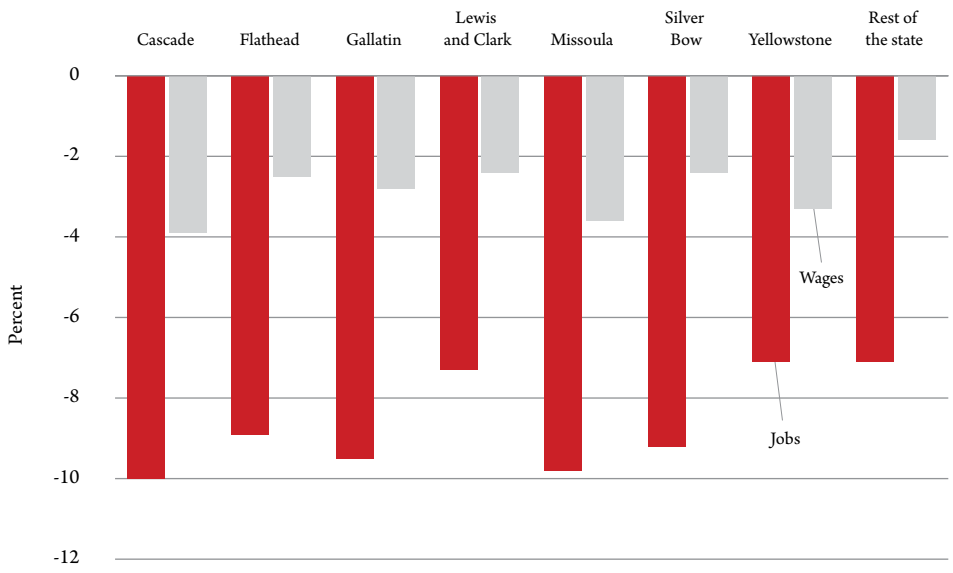


Figure 1. Job losses and wage losses between 2019Q4 and 2020Q2, Montana, percent change, selected counties. Source: Quarterly Census of Employment and Wages.

manufacturing in importance as an economic driver several years ago, although the latter's presence remains significant, particularly in Columbia Falls. Flathead County also represents a key node in the state's manufacturing landscape.

The pandemic-related closure of the Canadian border immediately to the north has been an extra challenge for the economy in 2020.

Missoula County's recent growth history has moved in the other direction. Its economic performance, along with the performance of Ravalli County immediately to its south, suffered in the years immediately following the Great Recession, but both have improved considerably since. The second most populous county lost its claim as the second largest economy in the state to Bozeman, but that says more about the growth in the latter than weakness in Missoula.

While it has been hampered by the enrollment challenges at the University of Montana, growth in university research, and more significantly in its high-tech and professional services sector, has helped fuel recent growth. Its average growth of 3.6% since 2013 falls just short of Flathead County.

Yellowstone County, the state's largest, has had growth challenges ever since the oil price collapse of 2014-15. Prior to that time, Billings enjoyed strong growth that reflected the economic conditions of the four-state region it serves as a commercial hub. Not just energy, but agriculture across the state enjoyed very good years in the aftermath of the Great Recession, with decidedly different circumstances in both sectors playing out today.

As a county with no oil reserves, Yellowstone's connection to Bakken oil fields and other energy and mining activities is less apparent, but its numerous, high paying, mining, construction and other support services jobs have had a huge influence on the overall fortunes of the local economy. The Bakken's thankfully brief, but severe, downturn in the months after the oil price turbulence of early 2020 creates more uncertainty for this part of the economy.

The strength of the goods side of the national economy in the midst of this downturn and the emphasis on supply and logistics plays to the strengths of the Billings economy. As pandemic disruptions ease, the region's health care industry, by far the state's largest, should get back on track as well.

The Rest: Cascade, Lewis and Clark, Silver Bow Counties

Three other urbanized counties in the state have had economic trajectories that more closely resemble the overall average. They differ in almost every other respect, however.

Cascade County is home to Great Falls, the urban hub and commercial capital of a large swath of north central Montana, including some of the most productive farmland in the state. It enjoys the stability of being host to a sizable military facility (Malmstrom Air Force Base), but has been challenged in recent decades in capturing its fair share of the economic migrants that have settled further south and west.

The education and information/media sectors of the economy have been more challenged by the pandemic than

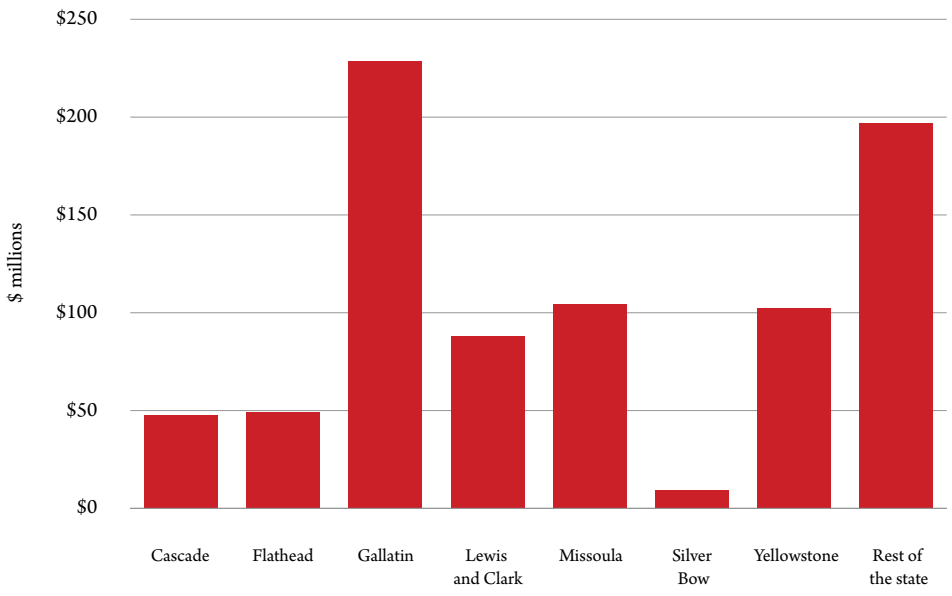


Figure 2. Growth in inflation-corrected nonfarm earnings, Montana, 2019, millions of dollars. Source: U.S. Bureau of Economic Analysis.

most, while the retail sector has held up a bit better. A better year for farm revenues, thanks in part to government support programs, is a plus for the local economy.

Lewis and Clark County's economy, home to the state capital, has not been recession proof in this downturn, as has often been the case before. The shutdown in schools helped produced the opposite – a disproportionate contraction in government employment and wages that produced more pain than elsewhere. This was partially offset by strength in retail and stability in health care. But the largess of the CARES Act brought plenty of federal spending into Montana in general, which bodes well for Helena's immediate future.

Silver Bow County, the smallest in terms of geography and population in the discussion thus far, has seen greater ups and downs in recent economic growth. Most promising in recent years has been its rising prominence as a visitor destination, which has been challenged by the pandemic. Its earnings overall have always been greatly influenced by the wages and bonuses paid by its remaining mining employers, and the recent strength in copper prices augers well for the immediate future for that sector.

The Rest of the State

It is, of course, impossible to paint a simple picture of the state's 49 remaining counties in terms of their economic performance. Yet significant stories remain to be told. The oil patch counties on the state's eastern border can expect to feel further fallout from the uneven performance of that commodity over the course of 2020, just as the coal producing areas bordering Wyoming have been challenged by the gloomier prospects for that economic driver.

Less noticeable perhaps is the profound influence of federal government spending and employment in many parts of the state, but especially along the northern border. Most of the growth in government jobs and wages that occurred in 2020 was outside the state's urban areas. On the other hand, the out-migration of younger people toward cities and other opportunities from the state's rural and frontier counties continues to present nonurban Montana with serious challenges in everything from housing to health care access.

Patrick M. Barkey is director of the Bureau of Business and Economic Research at the University of Montana.

State Revenue Report

Montana's Employment Losses Slow Growth

BY TERRY JOHNSON

There are numerous taxes, fees and investment earnings that fund a variety of state services. As shown in Table 1 for fiscal 2020, total general fund collections were $2.53 billion with over 76% collected from income (individual and corporation) and property taxes.

Total general fund collections decreased by $40.3 million or 1.6% from collections received in fiscal 2019. However, this decline is misleading since there were significant one-time revenue transfers authorized by the 65th Montana Legislature that increased collections in fiscal 2019 and an individual income tax accounting error that understated collections in fiscal 2020.

The transfers were monies moved from other state funds to the state general fund. The transfer amounts were included in the revenue category "other sources" and were recorded in fiscal 2018 and 2019. The accounting error was an individual income tax accrual not recorded in fiscal 2020. The unaccrued amount will be recorded as fiscal 2021 collections.

Figure 1 shows the year-over-year change in collections from fiscal 2016 to 2020. The change amounts are shown for both total general fund collections and total general fund collections with the adjustments as discussed previously. With these adjustments, total general fund collections increased by $57.6 million or 2.4% in fiscal 2020. Even with the adjustments, total general fund collections have not increased at the amounts observed in fiscal 2018 and 2019. These increases were driven by robust growth in individual and corporation income taxes. However, the economic impacts of COVID-19

*Figure 1. General fund collections, year over year change. *Adjustments include the exclusion of other sources and the inclusion of the accounting error. Source: Montana's Statewide Accounting, Budgeting and Human Resource System.*

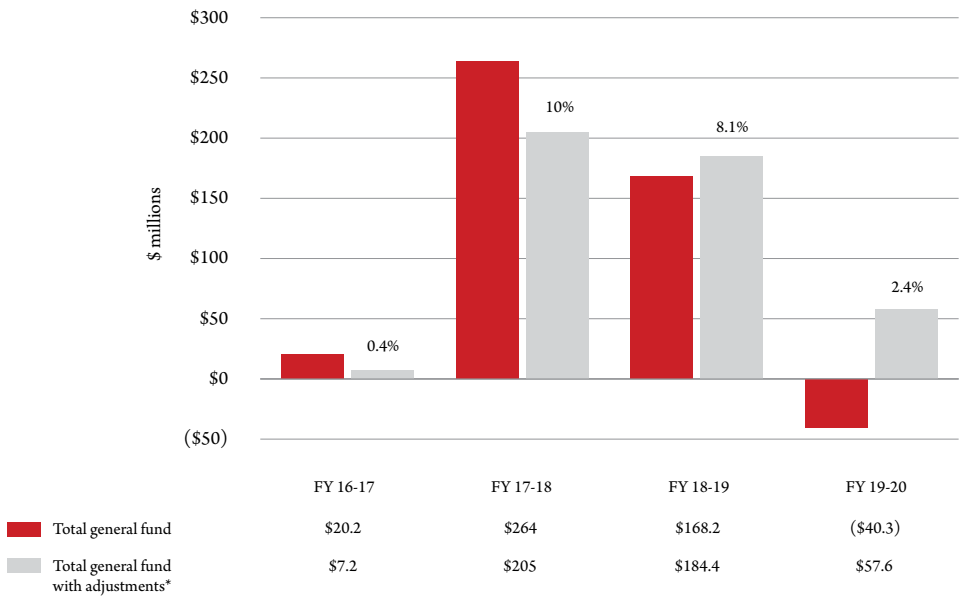


Table 1. Total general fund collections, Montana. Source: Montana's Statewide Accounting, Budgeting and Human Resource System.

Revenue Category	Fiscal 2016 Collections	Fiscal 2017 Collections	Fiscal 2018 Collections	Fiscal 2019 Collections	Fiscal 2020 Collections	% of total	$ Change FY 19 to 20	% Change FY 19 to 20
Top Seven Sources								
Corporation Tax	$118.4	$126.0	$167.1	$186.5	$187.4	**7.4%**	$0.01	0.0%
Individual Income Tax	1,184.8	1,168.2	1,297.8	1,429.0	1,435.2	**56.7%**	6.23	0.4%
Insurance Tax	69.3	75.6	75.3	76.1	82.5	3.3%	6.35	8.3%
Oil & Natural Gas Tax	39.1	46.3	54.5	54.2	38.4	1.5%	(15.80)	-29.2%
Property Tax	257.1	260.2	276.4	289.2	308.6	**12.2%**	19.40	6.7%
Vehicle Fee	108.5	109.2	109.5	109.5	108.5	4.3%	(0.97)	-0.9%
Video Gaming Tax	60.6	60.0	60.3	63.2	57.4	2.3%	(5.78)	-9.1%
Business Sources	59.7	59.3	61.7	63.7	72.2	2.8%	8.46	13.3%
Consumption Sources	85.4	84.0	83.2	85.5	84.3	3.3%	(1.26)	-1.5%
Interest Earnings Sources	24.7	25.5	28.7	40.1	40.1	1.6%	(0.07)	-0.2%
Natural Resource Sources	43.3	43.7	48.5	50.2	45.4	1.8%	(4.81)	-9.6%
Other Sources	70.5	83.5	142.4	126.2	73.3	2.9%	(52.87)	-41.9%
Total General Fund	**$2,121.3**	**$2,141.5**	**$2,405.4**	**$2,573.6**	**$2,533.3**		**($40.3)**	**-1.6%**
Individual Income Tax Accounting Issue					$45.0			
Total General Fund Less Other Sources Plus Accounting Issue	**$2,050.8**	**$2,058.0**	**$2,263.0**	**$2,447.4**	**$2,505.0**		**$57.6**	**2.4%**

started to show modest growth declines for income taxes in late fiscal 2020 (period ending June 30).

More significant declines in growth rates are anticipated during fiscal 2021 as Montana's employment losses slow the growth in withholding tax receipts, as well as a slowdown in corporate earnings.

Terry Johnson is the former chief revenue forecaster for the state of Montana, retired.

Major Economic Events of 2020

A Year We Won't Forget

BY PATRICK M. BARKEY

I doubt that many of us want to live this past year over again – 2020 served up enough major economic events for a lifetime. These included:

- The global pandemic roared into the state economy, changing mobility, consumption patterns, school instruction, business prospects and just about everything else. Job losses were severe, and in some cases temporary, with no end to the public health crisis yet in sight.

- The passage of the CARES Act by Congress opened a lifeline of federal spending into Montana, in the form of forgivable Paycheck Protection Plan loans to businesses, extended unemployment benefits to workers and $1.25 billion in support to state government to offset the ravages of the economic downturn.

- The state's largest coal mine, the Spring Creek Mine owned and operated by Navajo Transitional Energy, laid off and then rehired miners in what turned out to be another tumultuous year for Montana coal production.

- Two of the four coal-fired electricity generation units of the Colstrip power plant ceased operations at the beginning of the year, several years earlier than originally envisioned. The older and smaller Units 1 and 2 of the plant were closed as part of the settlement of a lawsuit filed by the Montana Environmental Information Center and the Sierra Club.

- Montana's farmers and ranchers enjoyed a better year in 2020, thanks to better crop conditions, slightly better prices and a generous dollop of government support. Between crop insurance, trade war support and CARES Act payments, the proportion of agriculture cash receipts received from government was a third of total income.

- NorthWestern Energy abandoned its efforts to purchase Puget Sound Energy's 25% ownership share of Unit 4 of the Colstrip coal-fired electric generating station for $1. The company cited its belief that the deal would not secure the approval of all the regulators involved, most notably in Washington state.

- The elections saw changes in power for chief executives, with Republicans capturing the governor's office for the first time in 16 years, while nationally Democrats won the presidential race. The consequences of these outcomes for Montana could be significant.

- Southern Pine Plantations sold off 291,000 acres of working forest land in northwest Montana to Green Diamond Resource Company, a forest land management concern with holdings in 10 states in the West and the South.

- A surge in demand for high-end real estate, much coming from out-of-state buyers, sent prices sharply upward for houses sold in the summer and fall of 2020. Gallatin County Realtor Association reported median sales prices of $575,000 at midyear.

Patrick M. Barkey is director of the Bureau of Business and Economic Research at the University of Montana.

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THE U.S. ECONOMIC OUTLOOK

The U.S. and Global Economies

Overcoming the Pandemic

BY PATRICK M. BARKEY

With the welcome news of real progress on the deployment of an effective COVID-19 vaccine and the conclusion of a bitter political election comes a tentative new optimism for the economy in 2021. IHS Markit, a global forecasting company, now projects a return to the U.S. economy's pre-pandemic growth path by the end of 2021, a significant revision from the more pessimistic assessments being made last summer.

It has been an extraordinary event, with an extraordinary policy response, both in addressing the economic and public health crises. The two are closely linked – unanticipated shortcomings in the rollout of the vaccine could make some of the optimism misplaced, but a more rapid decline of COVID-19 concerns could make actual growth surpass the projections. Meanwhile, the fallout from the aggressive monetary and fiscal policy responses to the economic collapse will rise higher in the list of challenges to be addressed in a post-pandemic future.

Here are the top 10 predictions for the U.S. and global economies courtesy of our friends at IHS Markit:

1. While the COVID-19 virus will stay with us, effective treatments and vaccines will be widely available to large segments of populations by mid-2021, facilitating a transition to the post-pandemic economy.

2. The global economy will enter 2021 at a subdued growth rate and accelerate to a brisk pace in the second half. Growth in Asia will lead, while growth in some corners of Europe (most notably the U.K.) will lag.

3. In 2021, the focus of investors and policymakers will shift from COVID-19 to the environment. Expect to see increasing appetite and availability of investment opportunities with more of an environmental, social and governance focus.

4. Monetary policies will remain accommodative, and more central banks will lean toward the U.S. Federal Reserve's flexible average inflation targeting (FAIT) policy.

5. The global financial sector should avoid major crises in 2021 – at least in advanced economies – but banking risks will rise. This is particularly so for banks with exposure to the debt of countries that have the heaviest debt burdens relative to the size of their economies.

6. Finished goods prices will accelerate in 2021. Price increases in a broad category of physical goods, already apparent in input prices, will show up in products this year. Prices of services, which been pushed down by depressed demand, will stabilize.

7. The U.S. economy will start 2021 slowly and accelerate in the second half. Overall, growth next year will be 4.2%, significantly above long-term trend.

8. Europe's 2021 annual growth rates will fall short of market consensus expectations. There is large variation in economic performance, with tourism intensive countries like Greece and Spain faring more poorly while Germany and Scandinavian countries doing better.

Table 1. A quick look at the numbers (annual rates). Source: IHS Markit.

Annual rates	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2019	2020	2021	2022	2023
Real GDP (% ch.)	-31.4	33.1	5.6	2.9	2.3	2.2	-3.4	4.3	3.6	2.6
Real consumer spending (% ch.)	-33.2	40.6	6.3	1.9	4.1	2.4	-3.7	5.2	3.8	2.2
Federal funds rate (%)	0.06	0.09	0.10	0.10	0.10	2.16	0.38	0.10	0.09	0.10
10-yr. T-note yield (%)	0.69	0.65	0.83	0.88	1.01	2.14	0.89	1.02	1.28	1.46
Brent crude price ($/barrel)	29.38	42.97	41.73	43.08	44.25	64.34	41.13	46.83	55.88	57.57
CPI (year/year % ch.)	-3.5	5.2	1.8	1.5	2.2	1.8	1.2	1.8	1.8	1.9
Housing starts (millions)	1.079	1.440	1.489	1.422	1.395	1.295	1.373	1.386	1.312	1.275
Unemployment rate (%)	13.0	8.8	6.8	6.3	6.2	3.7	8.1	5.9	4.6	4.4

9. Mainland China's economy will accelerate to the strongest growth rate in recent years, but the rebound will wane.

10. The U.S. dollar should weaken in 2021 in a lagged response to the Fed's sharp pivot to monetary accommodation in early 2020 and an increase in investor risk tolerance. Interest rate differentials between the U.S. and Europe have narrowed dramatically.

Patrick M. Barkey is director of the Bureau of Business and Economic Research at the University of Montana.

HOW COVID-19 HAS RESHAPED THE ECONOMY

What Changes Are Here to Stay?

BY PATRICK M. BARKEY

Cities will still exist next year. So will universities, mass transit, rock concerts and football games. But that's not to say that the premise of their very existence hasn't been rocked by the COVID-19 pandemic. Because the one thing that all of those have in common – bringing people together in close proximity – has been switched from being something good, to being something potentially deadly over most of 2020.

As we are all aware, the need to distance ourselves imposed on us by a communicable virus has altered our individual and collective behavior to a degree that was once unthinkable. The changes in the economy, both in Montana and elsewhere, have been profound. Sports stadiums, skyscrapers and even university classrooms stand largely empty while spare bedrooms and basements are full of people tapping keyboards.

With each passing month, the particular character of this recession becomes clearer. As the fear and disruption of the initial outbreak of the pandemic eased, the downturn has settled in as being felt the most in consumer spending and in services that involve physical proximity. As of this writing, there is hope that the recently approved vaccine will begin to repair that damage.

Every recession brings on changes that are more lasting. Trying to sort out which changes will stick and which will be forgotten is a challenge, but it's interesting to try. Here is our list:

High Savings Rates

In the month of April, Americans saved an astounding 33.7% of their income, as businesses closed and shut-in orders were almost universal. Even in the more recent data, savings rates remain elevated, with October rates of 13.6% – roughly

Bryan Kirkland takes extra time to clean between clients at The Barbershop and Shaving Parlor in Bozeman. (AP Photo, Ryan Berry)

twice as high as rates that prevailed pre-COVID. The trend is reflected in bank deposits, which rose by $2.3 trillion when the pandemic started and have remained elevated since.

Such behavior has never occurred in a recession. But many consumption opportunities have been prevented by the pandemic, while at the same time, the largess of the CARES Act has showered households with extra income. We look for rates to come down to historical levels, around 7%, when travel, restaurants and other consumption categories recover.

Strong Demand for Durable Goods

It is unusual in a recession to see consumer spending on durables rise, and yet that is exactly what is happening. After plunging by more than 20% compared to the previous year in April when the economic storm was fiercest, spending on cars, furniture, computers and a whole host of other durable goods items snapped back quickly, with total spending now 15% higher than year-ago levels.

While it is tempting to conclude that this surge in spending today comes at a cost of lower future spending as consumers move their spending plans forward in time, that might not be entirely the case. Especially if part of the spending reflects shifts in housing demand toward larger, less urban homes that may be a longer lasting legacy of the pandemic.

Eating at Home

Restaurants have suffered greatly in this pandemic – spending on restaurants and hotels in Montana was down by a staggering 46.1% through December, according to credit card records compiled by the website TrackTheRecovery.com. At the same, grocery store spending has been up by almost 10% nationally. That sudden shift caught supply chains off balance, with shortages on store shelves and surpluses in restaurant grade products.

Ten months into the pandemic, these patterns are largely intact, but given the strength in income growth during the recession, can be expected to revert to something closer to normal as public health conditions improve. The variety and availability of restaurants may take more time to recover, however, as many are not expected to survive the downturn.

Reshoring or Nearshoring Supply Chains

Has the evolution of global supply chains for everything from toys to pharmaceuticals been halted? If so, it would halt a nearly 30-year span during which an increasingly

sophisticated system of production that has brought great benefits to consumers, but has been exposed as vulnerable to disruption. An insurance policy against future disruptions could bring more redundancy and closer geographic sourcing for key products and components to head off some of the worst aspects of future events.

Promises of bringing production back home run up against the higher costs and lower capacity such changes would inevitably entail. Absent explicit government actions to produce these results, we expect global ties to resume as before in a short span of time.

Out-Migration From Urban Areas

A force that was unleashed with surprising fury was the push of real estate money out of urbanized areas toward states like Montana. The story was told, supported by many anecdotes, that the surge in online work combined with the downsides of urban life in times of pandemic and unrest made places like Montana feasible and attractive to out-of-state buyers. The higher-priced end of the markets in places like Bozeman, Kalispell and Missoula saw high demand this summer, and median prices of homes sold rose significantly.

Certainly this trend bears watching. There is no question that the surge in people working from home has increased demand for residential space, and that markets in Montana can offer the lower density and higher space that many are looking for. But the trend in migration away from the nation's most urbanized counties predates the pandemic, and until now has been directed at the exurbs of those regions and not to a state with a winter climate that is several time zones away.

Adoption of Technology

Zoom conferences, grocery delivery, restaurant meals ordered with your phone and streaming just released movies in your home – all of these things have been possible for several years. Yet most of us drove to work, walked the aisles of stores and traveled to movie theaters. The adoption rate for these and other technologies took a quantum leap during the pandemic, and that promises to be even a bigger challenge for the traditional settings that these virtual tools replaced, even as public health concerns ebb.

Of particular note is the penetration of e-commerce. Warehousing and transportation accounted for 145,000 of the 245,000 jobs created in the U.S. economy in November, and most of those jobs were the ones that package, ship and deliver packages to consumers. Clothing, food, cars and even houses are being bought online, with most surveys finding that consumers will continue to use at least some of these options when the pandemic runs its course.

Office Space and Commercial Real Estate

Medium-sized cities in Montana have not felt the exodus of office workers from city centers that larger commercial centers have experienced. Nationally, rents are expected to decline by as much as 13% in 2020, although it has been the ultra-high rent markets like San Francisco that have had the heaviest influence on this outcome. It is unclear whether the resumption of ordinary personal contact will still result in workers staying home for a least part of the time, with consequences for the demand for space.

Rising Federal Government Debt

There is one aspect of the pandemic where changes are guaranteed to stick, and that is in the debt of the federal government. The deficit financed spending of the CARES Act came at a time when deficits were already running close to $1 trillion per year, and has pushed the deficit in calendar year 2020 to $3.1 trillion. While those actions have been effective, the reality is that federal government debt held by the public as a percentage of GDP is at levels not seen since World War II.

How COVID-19 Has Reshaped the Economy

Recessions are surprises in their timing and severity, but familiar in their impacts. In every downturn, the economy goes into reverse, but in the recoveries some cuts become permanent. It is too soon to know which of the many impacts of the COVID-19 recession will be more lasting, but the upheaval caused by the pandemic and it impact on our behavior will carry though into the future, for better or for worse.

Patrick M. Barkey is director of the Bureau of Business and Economic Research at the University of Montana.

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A LIFE-OR-DEATH MOMENT FOR CITIES

New York and Other Metropolises Must Protect Themselves From Pandemics or Our Future Will Be Far Less Urban

BY EDWARD GLAESER

From the Editor: *This article was first published in the opinion section of the New York Daily News on May 10, 2020.*

COVID-19 has killed at least 19,000 New Yorkers and dealt a body blow with lasting consequences to the city. Two paths lie ahead. If pandemics become common, then not only New York City, but all of America's service-based economy faces a bleak future. If this terrible plague is a unique event, then things will eventually get almost back to normal. To save both the nation's biggest and most productive metropolis and tens of millions of service jobs across the county, we must invest enormously to prevent future pandemics.

For urban areas in the global economy, pandemic risk comes with the territory. Cities like New York are the nodes of a great transportation network that spans across oceans and continents. Consequently, cities are also ports of entry for contagious disease.

Cities are defined by their density. New York exists to bring people near to one another to enable economic, social and cultural collaborations. Those collaborations have made America rich, strengthened democracy and produced great art, from the painting of Jackson Pollock to the writing of F. Scott Fitzgerald and Jimmy Breslin. But proximity also spreads disease.

Because New York is both hyper-connected and hyper-dense, COVID-19 hit the five boroughs hard. To date, New York City accounts for one-fourth of the total COVID-19 deaths in the United States. Gotham accounts for 0.1% of the world's population, but over 7% of total global COVID-19 deaths.

A DoorDash food delivery person makes his way through slushy snow in New York City during a second wave of the COVID-19 pandemic. (AP Photo, Anthony Behar)

The COVID-19 pandemic is a more terrible event for New York than the 9/11 terrorist attacks because the harm goes beyond the death toll. People come to cities to connect with other people, but fear of infection undermines the desire for connection. When contagious diseases make us terrified of strangers, then crowded city streets become hellish. For many who are sheltering in place, a meager cabin in Wyoming beats a fantastic studio in Soho.

If fear of plague becomes permanent, then the COVID-19 pandemic could become a hinge in history, after which people flee the cities that made us. Past plagues have destroyed urban civilizations, but other pandemics have been potholes rather than roadblocks for New York. We need to make sure that COVID-19 is a terrible aberration rather than a turning point.

The Black Death first struck Constantinople in 541 A.D., just as the Emperor Justinian was reconquering Italy. Justinian dreamed of bringing back the Pax Romana to the Mediterranean World; the plague destroyed that hope. Year after year, century after century, the Black Death returned to Europe's cities and cast that continent into a millennium of terrible rural poverty. That is our bleak ghost of pandemics past.

Cholera emerged out of India's Ganges Delta in 1817 and spread to the East India Company's trading capital of Calcutta. From there, the pandemic traveled across the planet, ultimately striking New York City in 1832. Thousands of New Yorkers died then and in the two subsequent outbreaks that started in 1849 and 1866 respectively. My great-great-great grandfather died in New York's 1849 cholera epidemic.

New York City survived the city-slaying cholera pandemics of the 19th century, just as it survived the Influenza Pandemic of 1919. These examples tell us that New York can also survive COVID-19, and even emerge stronger, but we cannot just trust to luck.

The Black Death killed people and cities for centuries, because the disease was not understood. There was no cure and the plague came back again and again.

Cholera didn't end 19th century urban growth because doctors discovered the cause of that water-borne disease. That knowledge then justified the enormous municipal spending on water and sewers that practically defined urban government throughout the 1800s.

London's Dr. John Snow is rightly revered as a founding father of epidemiology, because his medical detective work revealed the secret of London's 1854 cholera epidemic. By

studying his ghost maps of cholera deaths, he discovered that the source of the disease was an infected water pump. The low rates of disease among local brewery workers, who had something better than water to drink, confirmed his hypothesis that cholera was a water-borne illness.

Cities spread knowledge as well as disease, and Snow's insight passed over to Dr. Stephen Smith, a Bellevue surgeon who is one of New York's great unsung heroes. Smith first built up public outcry over the terrible sanitary conditions in the city; New York had the Croton Aqueduct since 1842, but poorer New Yorkers didn't want to pay the hefty connection fee.

Smith became the first leader of the Metropolitan Board of Health in 1866, which required that the city's tenement owners pay for connections to the water and sewer system. Cholera would never again kill thousands of New Yorkers, and the city started to live with less fear.

Across the U.S., cities became safe because they invested enormous amounts in public health. City and local governments were spending as much on clean water and sewers at the start of the 20th century as the federal government was spending on everything except for the Post Office and the Army.

We may also have to spend vast sums to make our urban world safe again today. Billions on preemptive vaccines and ventilators and virology research could save trillions lost in future lockdowns. We are now paying the price for ignoring the warning signs offered by the 2003 SARS epidemic, the 2009 H1N1 outbreak and the 2014 Ebola outbreak.

New York isn't in this alone. Most American workers will suffer enormously if we don't prevent future pandemics. Over the past 150 years, Americans have moved from farms to factories to urban service jobs. One-fifth of employed Americans, or 32 million workers, labor in retail trade, leisure and hospitality.

These jobs provide a safe haven from automation, because people will pay extra for coffee that's served with a smile. No New York deli experience would be the same if robots were serving the pastrami. But those jobs will disappear if having a human serve your coffee brings more fear than opportunity.

Ultimately, tens of millions of American workers from Dallas to Des Moines have jobs because people enjoy interacting with other human beings. If the risk of contagion remains with us for decades, then human contact will bring fear more than joy and those jobs will disappear. The result will be an employment Armageddon, especially for less-skilled American workers.

The 14.7% unemployment rate that was announced on Friday (May 8) is a foreshadow of that terrible future. The elite knowledge workers are the lucky ones. They can shelter in place and Zoom to their meetings. The cooks and the salesmen and the bartenders are already on the employment line and they will stay there if pandemic risk becomes permanent.

The non-employment rate among prime-aged American males was 5% in the 1960s, but it has been 15% for most of the past 10 years. America's eastern heartland, which stretches from Detroit to New Orleans, is the epicenter of American joblessness. That region lost its manufacturing base, just like New York, but never experienced a service sector renaissance. If the pandemic kills off service sector jobs, then the whole country's job market will resemble Appalachia's job market today.

Manufacturing jobs may be a bit safer from a pandemic, but they are vulnerable both to machines and to low-cost labor in the developing world. The largest industrial cluster in the U.S. was once New York City's Garment District, but don't fool yourself. Our wages are too high to compete globally in light manufacturing, and our competitive manufacturing industries rely primarily on machines.

The stakes are so enormous that I am hopeful that America will do whatever it takes to stop the pandemics of the future.

Major investments in public health are the first step toward saving New York City, but even with that investment, the city will not be the same. New York will face tough years, as visitors

Families stand in a line that stretches seven blocks for holiday toys and winter coats in New York City. (AP Photo, Lev Radin)

shun its hotels, global tourism remains low and commuting dwindles, as many companies shift to work-from-home. For a few years, some people will switch to the suburbs.

But memories are short. If the pandemic ends and does not return, then within a decade, New York will come back. The city's strengths will see it through as long as humans can meet safely with one another.

This is not to say we are ever going back to exactly the way things were.

Even without a new pandemic, people will become more cautious about colds and flu. Masks will become more common. Handshakes may be rarer. People will be more reticent about just hanging out in great crowds. It will be a more cautious city, as the shadow of at least 19,000 deaths overcasts the city's streets.

Not all of that change will be terrible, at least as time passes. Tokyo is a great city and people wear masks there. A little more attention to public health will be good for the city, if a little less fun. But it will be different.

Some people may even choose to remain to live in their apartments, if the alternative is to live in a nursing home. In Massachusetts, almost 60% of COVID-19 deaths have been in nursing homes. The mortality rate in New Jersey nursing homes was even higher. The most obvious mistake that we made in the COVID-19 crisis was that we failed to protect our must vulnerable. We must not make that mistake again.

And we must never, ever, again ignore the risk of pandemic. New York City's future depends on it.

Edward Glaeser is the Fred and Eleanor Glimp Professor of Economics at Harvard University and a senior fellow at the Manhattan Institute.

THE STATE OF MANUFACTURING IN MONTANA

Manufacturing Growth Stalls Due to COVID-19

BY ROBERT SONORA

The United States entered a recession on March 1, 2020. The recession was caused by the need to close the economy as the impacts of the COVID-19 pandemic began to ripple through the global economy. The pandemic brought an end the longest economic expansion in U.S. post-WWII economic history, lasting 10 1/2 years. COVID-19 and policy responses, both from an economic and health perspective, will lead to considerable uncertainty for some time to come.

Economic data for the second quarter of 2020 was dire. First quarter real GDP in 2020 fell 1.3%. Real GDP in the second quarter of 2020 was 9% or in annualized terms -31.4%. The third quarter of 2020 saw a resurgence of growth, 33.1%. But that is still 2.2% below the first quarter level of output.

Current forecasts for the U.S. economy show the rebound to continue. According to The Conference Board's forecast, the annualized 2020Q4 growth will be 2.2% and their baseline forecast for 2021 is 3.4% real GDP growth. They predict the U.S. economy to recover to pre-recession levels by late 2021, but do not foresee the U.S. economy returning to its prerecession trend in 2021. Nevertheless, the most recent IHS Markit U.S. Manufacturing Purchasing Managers' Index (PMI) augured an improvement for the manufacturing sector. However, employment is not keeping pace with expectations and supply chain delays and input shortages are likely to be a drag on the sector.

U.S. Sen. Steve Daines speaks at a manufacturing facility under construction in Bozeman. (AP Photo, Matthew Brown)

The impact on U.S. manufacturing has been considerable having already felt the impacts of an ongoing tariff war. Estimates have put the cost to the U.S. economy in the hundreds of billions of dollars per year. The effects of the COVID-19 pandemic have only worsened the economic environment. In March, the National Association of Manufacturers conducted a brief survey of the impacts of COVID-19 on the industry. The survey found:

- 35.5% face supply chain disruptions;
- Over 53% of manufacturing firms anticipate a change in their operations in the coming months;
- 78.3% say that uncertainty associated with COVID-19 will likely have a negative financial impact; and
- Roughly half of respondents stated their business has an emergency response plan.

Manufacturing in Montana

Manufacturing in Montana has remained a stable economic sector for the past decade. Between 2010 and 2019 manufacturing, as a share of total Montana employment, had risen slightly from 3.9% to 4.5% to 20,972. Similarly, manufacturing's labor income as a share of total rose from 4.8% to 5.1% to $1.1 billion in 2019. Average annual pay by Montana's manufacturers was $51,200 in 2019. By 2019 manufacturing climbed to 6.3% of total state gross state product to $3.4 billion.

Compared to the state average, manufacturing employment and total income have outpaced the state average. Employment and income were 29% and 55% respectively, higher than they were in 2010. Montana manufacturing has been growing relative to the U.S. as a whole. Nationally, manufacturing output grew an average of 3% between 2010 and 2019 and was 31% higher in 2019 than 2010. Correspondingly, Montana manufacturing employment also grew faster than the national average. U.S. manufacturing employment grew an annual average of 1.2% and was 11.4% higher in 2019 than in 2010.

Montana manufacturing does not have the same composition as the U.S. as a whole. Industries that are important in Montana are not necessarily important nationwide and vice versa. Figure 1 presents the composition of manufacturing earnings in Montana and the United States in 2018, the most recent data available.

The two largest Montana manufacturing industries in 2018 were associated with the processing of crude oil and

Figure 1. Composition of manufacturing in 2018 (percent of total manufacturing). Source: Bureau of Labor Statistics.

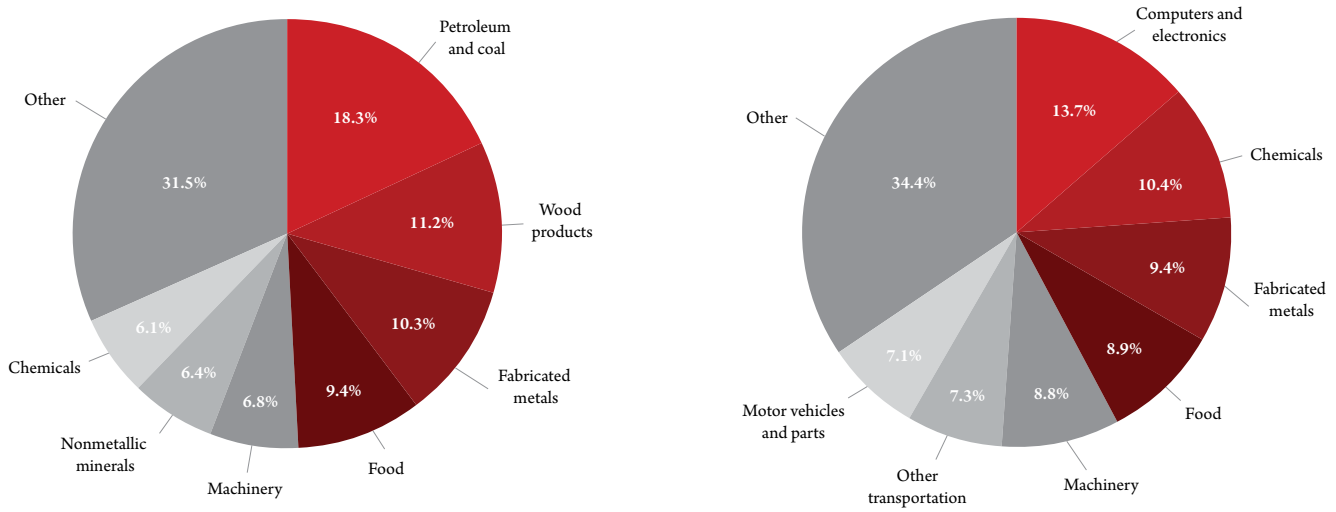
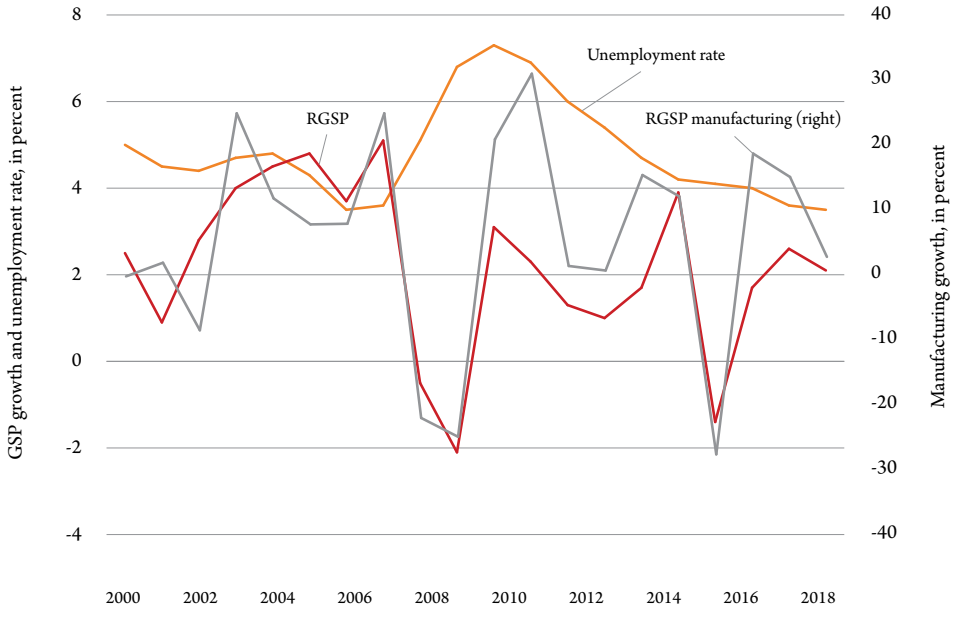


Figure 2. Montana economy and manufacturing. Sources: BLS and BEA.



forest resources. Petroleum and coal products (primarily oil refining) was the largest manufacturing industry accounting for 18.3% of total manufacturing earnings in 2018. The next largest industry was wood products and furniture, representing 11.2% of earnings. Fabricated metal, food and machinery round out the top five accounting for 10.3%, 9.4% and 6.8% respectively.

The largest component of U.S. manufacturing during 2018 continues to be computers and electronics, which accounted for 13.7% of total manufacturing earnings. The next four industries were chemical products (10.4%), fabricated metals (9.4%), food products (8.9%) and machinery (8.8%).

According to 2019 data, Montana's economy is roughly in the same position as the U.S. as a whole. The 2019 unemployment rate averaged 3.5 percent and in constant 2012 prices real gross state product (GSP) averaged 2.1 percent. Manufacturing output growth averaged 1.3% in 2019, down from 13.6% growth in 2018 (Figure 2). As the figure also shows, real manufacturing output took a substantial hit during the Great Recession, falling roughly 30% compared to an overall decline in real GSP of 1.4%.

Manufacturing Outlook in Montana

As with the national economy, the short-term severity of the COVID-19 recession requires that we look to the future to gain insight about current economic conditions that will affect manufacturing in the years to come. Figure 3 shows the forecasted index of overall, durable and overall manufacturing earnings from 2019Q1 to 2022Q2. As we can see, overall and nondurable manufacturing will fall almost 20%, at an annual rate in 2020Q1, while durable manufacturing will continue to fall into 2020Q3 before beginning to recover. By the end of 2022, manufacturing is estimated to recover to 2019Q1 levels. Manufacturing employment does not drop as sharply as earnings, but there is an approximately 8% decline in employment. While less pronounced than earnings, employment recovery growth is relatively slow and won't return to 2019Q1 levels until 2022.

Figure 3 Overall, durable and nondurable manufacturing earnings, and manufacturing employment in Montana. Sources: BBER estimates using data from IHS Markit, BLS and BEA.

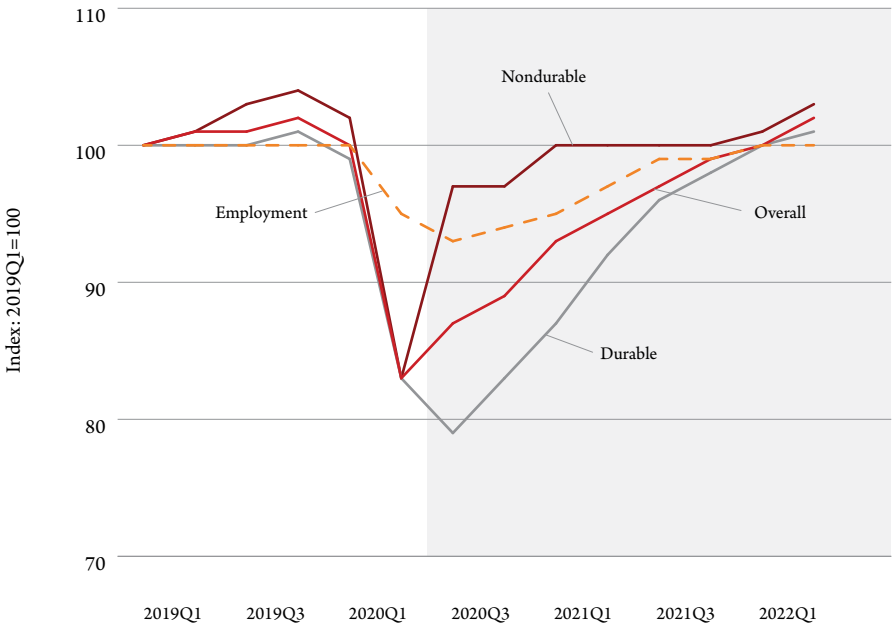


Table 1. Year-in-review survey responses.

Q1A. For calendar year 2019, did your plant's gross sales increase, stay about the same, or decrease from 2018?

Decrease	*Stay same*	*Increase*	*Total*
20.1%	31.9%	48.0%	279

Q1B. For calendar year 2019, did your plant's production increase, stay about the same, or decrease from 2018?

Decrease	*Stay same*	*Increase*	*Total*
20.1%	30.7%	49.1%	283

Q1C. For calendar year 2019, did your plant's profits increase, stay about the same, or decrease from 2018?

Decrease	*Stay same*	*Increase*	*Total*
20.4%	36.4%	43.3%	275

Manufacturer's Outlook Survey

Montana manufacturers were queried about a number of indicators and whether they thought the indicator would increase, decrease or stay the same during 2020. The tables report the percentage of respondents who said the indicator would increase or remain unchanged in 2019. It should be noted that the survey was conducted before the COVID-19 pandemic, which will clearly impact future expectations.

Montana manufacturers were asked to report on their plant's performance in 2019. Survey respondents were queried about a number of indicators and whether it increased, decreased or stayed the same during 2019. Montana manufacturers reported that 2019 was a moderately positive year. Almost 50% of firms reported a better year than previously and 20% see a decline. Question 1 asked how Montana manufacturing fared vis-à-vis 2018 (Table 1). Overall, we can see that in 2019 about 80% of firms saw no change or an increase in their sales, production and profit compared to 2018.

Montana Manufacturers Response to COVID-19

The first recorded COVID-19 positives in Montana were on March 14 and the first death two weeks later. Since then, thousands of Montanans have tested positive and hundreds have died of the disease. In response, as in many parts of the country, Montana manufacturers shifted a percentage of their manufacturing toward producing goods to assist in the COVID-19 response. Shortages of personal protection equipment (PPE) and cleaning supplies have been well documented. But there have been some feel-good stories about Montana producers.

Several Montana distillers shifted production toward producing hand sanitizer using a formulation devised by the World Health Organization. However, the relatively unique nature of the pandemic and the ever complex supply chain system created a shortage of bottles and caps for the sanitizer. With help from the Montana Manufacturing Extension Center, five distillers in the state (Bozeman Spirits, Gulch Distillers, Headframe Spirits, Wildrye Distilling and Willie's Distillery) received donations of 15,000 bottles and caps. While the bottle production was not located in Montana, Headframe in Butte coordinated the shipment and distribution of the bottles. Dean's Zesty Booch in Bozeman provided caps when Wildrye only received bottles.

Montana manufacturers have also been instrumental in providing PPE to Montana, as well as other states. Health care givers from the Billings Clinic and Zaugg Dentistry designed a 3D printable surgical mask, which uses an insertable filter. Flowmark/High Tech Filters increased production of filters to fit the design. In addition to producing filters for in-state sales, they have also been taken orders from around the country. Ascent Vision Technologies worked with Bozeman Health to design face shields and are producing them for local health care facilities. And in Missoula, Rocky Mountain Biologicals are producing a viral transport medium used in COVID-19 testing.

Robert Sonora is associate director and director of health care research at the Bureau of Business and Economic Research at the University of Montana.

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ASSESSING MONTANA'S KEY INDUSTRIES

Farming and Ranching

A Year of Volatile Commodity Prices and Near-Record Stimulus Payments

BY GEORGE HAYNES AND KATE FULLER

Montana farmers and ranchers were met with a combination of international trade issues and severe impacts from the COVID-19 pandemic in 2020. While facing lower agricultural prices earlier in 2020, federal stimulus programs addressing international trade disruptions (Market Facilitation Program) and the pandemic (Coronavirus Food Assistance Program) played an important role in the profitability of Montana producers (Figure 1).

Crop Production and Prices

Crop production returned to more long-run average production levels, although prices were very volatile in 2020. Spring wheat production increased by 23%, winter wheat production decreased by 20%, and barley and alfalfa hay production increased by less than 2%.

Total pulse acres decreased by 42% from a high of 1.5 million acres in 2017 to less than 900 thousand acres in 2020 for all pulse crops, except lentils. Lentil production increased

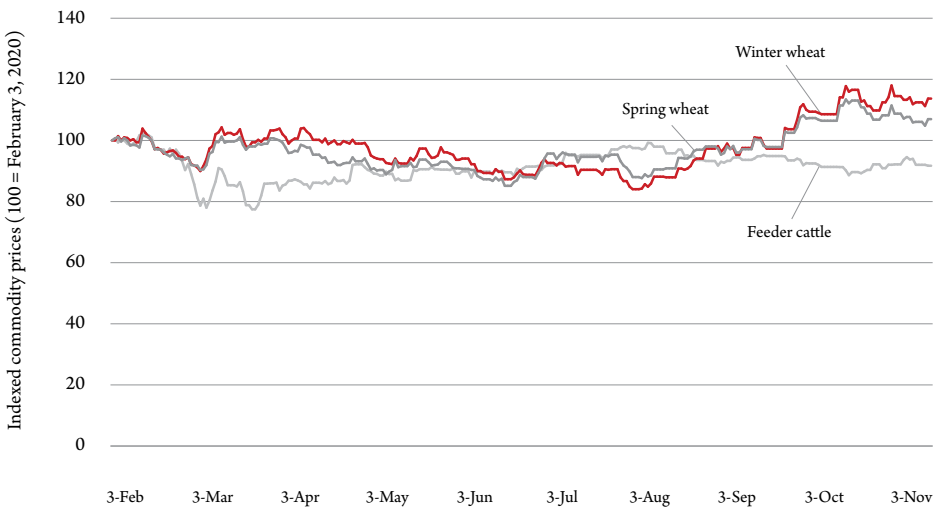


Figure 1. Indexed Commodity Prices, February through November 2020. Source: Chicago Mercantile Exchange Group Futures Quotes.

by 42%, dry edible pea production trended downward by 20% and chickpea production declined by 49%.

When comparing commodity prices between 2019 and 2020, spring and winter wheat prices trended downward through September, but rebounded through the end of the year and increased by at least 7% over the previous year by mid-November. Barley prices remained steady. Lentil prices trended upward, while dry peas and chickpeas prices declined slightly. Hay prices remained stable to slightly lower than the previous year. Price forecasts for the next five years suggest steady prices in the wheat, barley, pulse and hay markets.

Livestock (Cattle) Production and Prices

Even with the challenges posed by the pandemic, U.S. beef production increased slightly (less than 1%) in 2020. U.S. beef forecasts suggest that production will increase by less than 0.5% in 2021.

U.S. beef exports decreased by 6% from 2019, but are expected to increase by 6% in 2021. Over 70% of U.S. beef exports were purchased by four countries (Japan, Mexico, Canada and South Korea) in 2020. Beef exports to Japan and Canada increased, but exports to Mexico and South Korea declined from 2019 to 2020. U.S. beef imports increased by nearly 13% in 2020; however, they are expected to decline by 9% in 2021.

Montana ranchers are largely cow-calf producers, who market about 1.5 million calves each year. Calf prices declined by 2% from the previous year; however, price forecasts for the next five years suggest higher prices in the cattle market.

Farm Financial Conditions and Subsidy Programs

U.S. net farm income was forecast to increase by over 22% from 2019 through 2020. In Montana, cash receipts for livestock are expected to decline by 4%, while cash receipts for crops are expected to increase by 4%. Most importantly, direct government payments are expected to increase by 66% from 2019 to 2020.

The average U.S. farm balance sheet has remained healthy, with a debt to equity ratio below 17%, debt to asset ratio below 15%, and current ratio of less than 1.7. As reported last year, these ratios suggest that U.S. agriculture is facing short-term liquidity challenges, but not long-term solvency challenges.

George Haynes is an agricultural policy specialist with the Department of Agricultural Economics and Economics at Montana State University. Kate Fuller is an associate professor and extension specialist in the Department of Agricultural Economics and Economics at Montana State University.

Forest Products

Montana Wood Products in the Time of COVID-19

BY STEVEN HAYES AND TODD A. MORGAN

Montana's wood products industry started 2020 on a business as usual basis, but COVID-19 reached the industry in early March. All of the industry's components, from forests to mills to markets were affected somehow. The wood products industry was considered an essential industry. Loggers, truckers and mills could generally keep operating while complying with health restrictions, facing ongoing log supply challenges and finding new market opportunities.

With COVID-related shutdowns and stay-at-home orders in effect across the U.S., many people found time for do-it-yourself and home improvement projects. Nationwide, this created additional demand for wood products. Meanwhile, the U.S. timber producing regions (i.e., the South and Pacific Coast) that provide most of the wood products encountered production slowdowns and curtailments. Lumber shipments from Canada declined due to limited timber supply and reduced milling capacity, which contributed to U.S. wood product shortages. Lumber and panel markets responded with historic price spikes. The Random Lengths framing lumber composite price index increased nearly 150% from

the beginning of 2020 to its record high in September, when it started to slowly decline (Figure 1). In Montana, delivered log prices to mills were up 6% to 10% from 2019, just a small increase compared to national lumber prices.

Montana mills were generally able to continue operating. Even when they had sufficient logs to fill lumber orders, some mills were hard-pressed to match sales and shipping demands. This frenzy was short lived as mills worked through their log inventories while waiting for logging crews to get back into the forest after spring breakup. Lumber production in Montana through the first nine months of 2020 was 318 million board feet (MMBF), down 12.5% compared to the same period in 2019 (Figure 2). Employment at Montana mills over the same period was down almost 5%, and wages paid to production workers slipped by about 10.6% compared to 2019.

Comparing 2020 to the prior five-year average for the first through third quarters showed employment was down 8.5%, wages were down 6.7% and lumber production was down 16.5%. However, few of these declines can be attributed to COVID-19.

When log buyers and mill controllers were asked about COVID-19 impacts to their operations in the Bureau of Business and Economic Research's quarterly surveys, most reported limited to no impact on their operations. The R-Y sawmill in Townsend curtailed operations mid-year because of a lack of log supply, which had been announced in January 2020. The Idaho Forest Group's sawmill in St. Regis was down several months for a planned equipment upgrade, then resumed operations in August and expects to substantially increase production.

Wood products expectations for 2021 are mixed, but generally positive. Lumber and plywood demand is expected to remain strong. New housing starts continue to increase, and the home repair and remodel markets are expected to contribute to strong wood products sales. Likewise, there are positive signs for Montana on the forest management side. State and federal agencies continue to cooperate under the 2014 Farm Bill's Good Neighbor Authority to restore forest health, reduce wildfire hazard and harvest timber to meet ecological and economic objectives. A total of 291,000 acres of former Plum Creek/Weyerhaeuser land was purchased by Green Diamond with plans to manage it as working forests open to the public.

Steven Hayes is a senior research forester and Todd A. Morgan is director of the Forest Industry Research Program at the Bureau of Business and Economic Research.

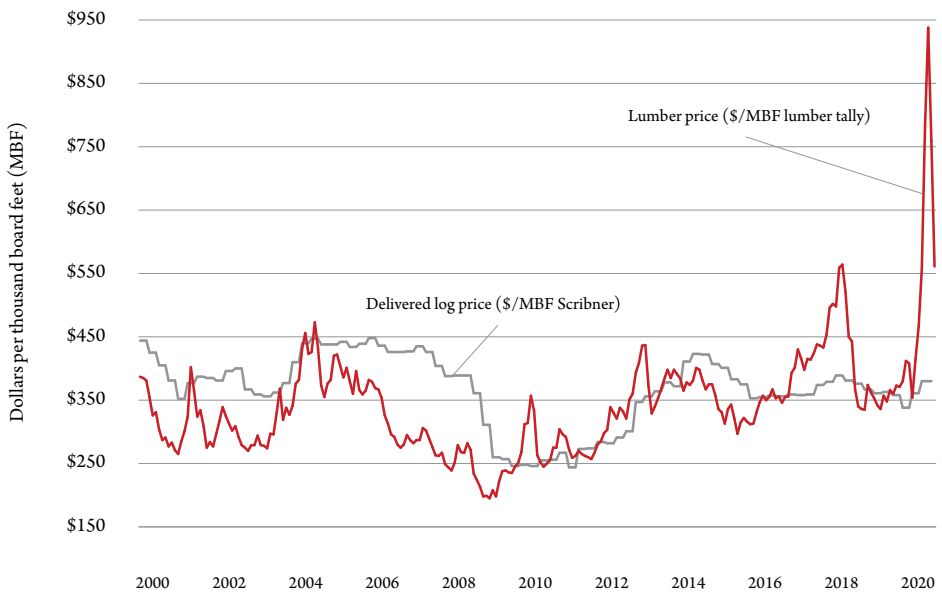
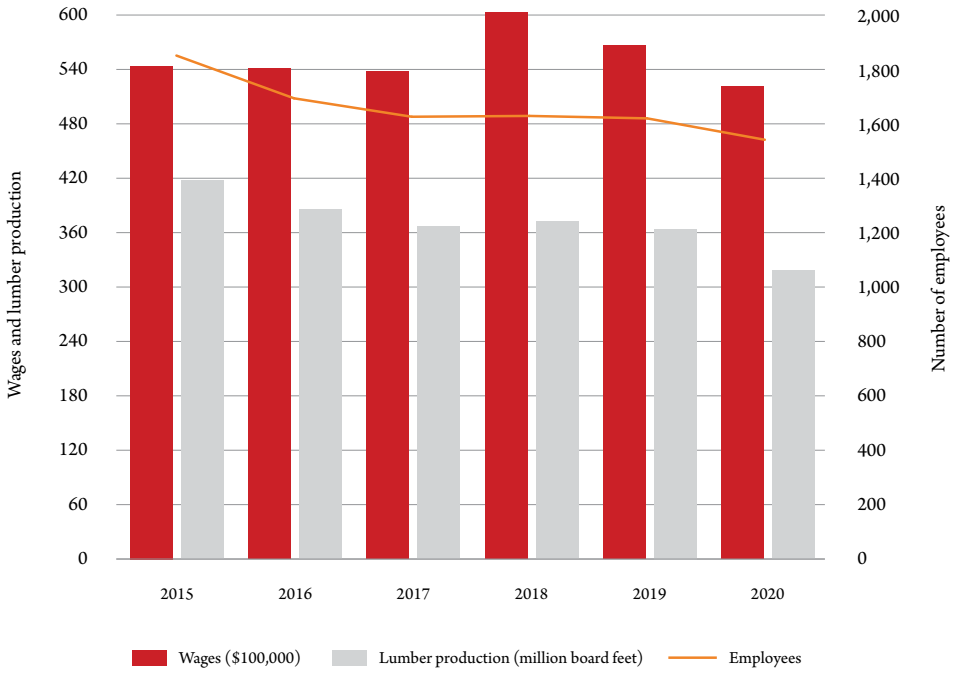


Figure 1. U.S. lumber prices and Montana delivered log prices (in nominal dollars), 2000-20. Sources: Random Lengths and BBER.

Figure 2. Montana wood products production employees, wages and lumber production: January through September, 2015-20. Source: Bureau of Business and Economic Research.



Energy

The COVID-19 Recession Impacts Prices

BY PAUL E. POLZIN

The COVID-19 pandemic has caused significant changes in energy demand and supply in 2020 and will continue to affect these patterns in the future. Here in Montana, the primary impacts will be moderating energy prices over the course of the recession. There may also be effects on production, employment and tax revenues, but these changes will mostly reflect the national and worldwide energy markets rather than factors unique to Montana.

A summary of energy price trends as reported by the U.S. Energy Information Agency is shown in Table 1. Petroleum and petroleum products display the greatest volatility. The entries in the first five rows of the table all report modest declines in 2019, along with greater decreases in 2020 as the COVID-19 recession intensified. The U.S. government forecasts modest upticks in all petroleum-related prices in 2021, but none are expected to return to their pre-recession levels. The continued depressed worldwide demand is the major cause of the small price increases.

Natural gas and electricity prices have been relatively stable through 2019. The U.S. government forecast for electricity prices are for only a modest increase in 2021. There is some disagreement about future natural gas prices. The U.S. government forecasts call for only a modest increase. Within the oil industry however, primarily among shale producers, the price outlook is much more optimistic. These companies are reporting large investments in shale natural gas projects. Montana has only limited shale gas production.

Coal

Montana coal is primarily burned as boiler fuel in electrical generating plants providing base-load power. The major customers are Midwest utilities, customers in the Pacific Northwest and coal for export. Coal is also burned locally in the Colstrip III and IV generating plants in eastern Montana.

The U.S. coal industry has been facing increasingly strong headwinds from environmental concerns and competition

from natural gas and renewables. Montana coal production plateaued in the mid-30 million tons per year during the past half-decade. But production dropped significantly during 2020. The Montana Coal Council reports that coal production is down 21% from the same period in 2019. The recession has decreased economic activity and increased the number people working from home. These factors led to less coal burning in power plants.

The major bright spot for Montana coal is growth in the export market. Asian utilities have increasingly turned to low sulfur coal to reduce emissions from their higher sulfur local sources. Montana is well positioned to serve these markets because our rail lines directly connect with the Pacific Northwest. The major hindrance is the availability of port space.

Oil and Natural Gas

Technological advancements underpin the shale oil boom in the Bakken on the Montana and North Dakota border. Most of the production is from the North Dakota side of the border. The current low oil prices have depressed production and exploration. Shale advocates boast that they are nimble and flexible low cost producers and can quickly react to increases in oil prices when they occur.

Electric Power

The final disposition of the Colstrip baseload generating units remain the major uncertainty in this sector. The two older units (I and II) are offline and scheduled for deconstruction. Units III and IV are currently in the midst of ownership issues and out-of-state regulatory consideration. Northwestern Energy has proposed a partial purchase, but this is being contested before the Montana Public Service commission and other venues. Washington State and Oregon regulatory commissions are considering the extent that coal -fired generation may be included in utilities' rate base.

Additional gas-fired generation has been proposed by Northwestern Energy. Projects such as the Absaroka Energy Pumped storage project in central Montana and increased investment in wind energy could add to generating capacity. But renewable sources continue to be a small share of the state's generating capacity.

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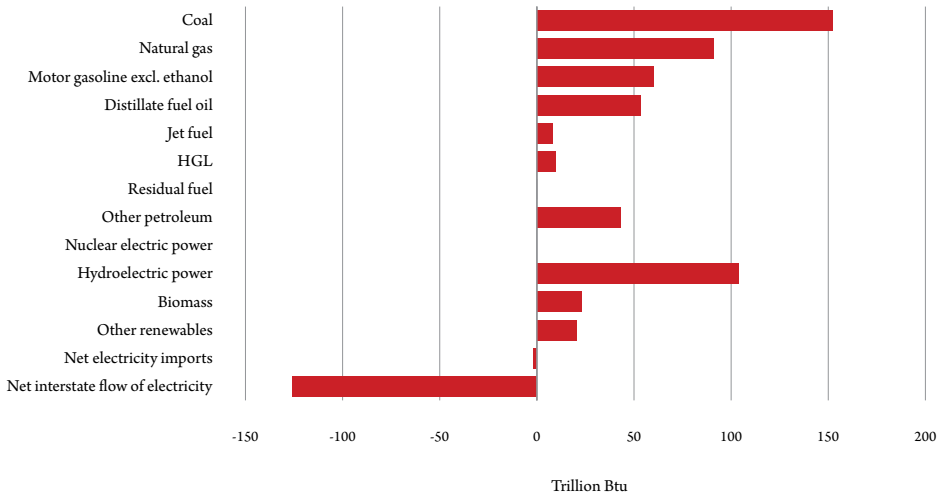

Figure 1. Montana energy consumption estimates, 2018. Source: Energy Information Administration.

Table 1. U.S. Energy price summary. Source: U.S. Energy Information Agency.

	2018	2019	2020	2021(p)
WTI Crude ($ per barrel)	65.07	56.90	38.24	44.24
Brent Crude ($ per barrel)	71.21	63.34	40.61	45.59
Gasoline ($ per gallon)	2.73	2.60	2.15	2.22
Diesel ($ per gallon)	3.18	3.06	2.53	2.56
Heating Oil ($ per gallon)	3.01	3.00	2.43	2.47
Natural Gas ($ per thousand CF)	10.46	10.46	10.59	10.90
Electricity (Cents per kilowatt)	12.87	13.01	13.10	13.22

Manufacturing

Continued Growth Is Interrupted by the Pandemic

BY ROBERT SONORA

Montana manufacturing employment has grown about 1% faster than national output since the Great Recession. Montana manufacturing employment rose 25% to 20,500 workers from in 2010 to 2019. About two-thirds of manufacturing employees are in the durable goods sector. However, since 2015, the fastest growth has been in the nondurable manufacturing sector.

The strong growth in Montana manufacturing employment occurred despite closures in several manufacturing industries, such as the Smurfit-Stone paper mill near Missoula, which permanently closed in early 2010. This facility was the largest manufacturing plant in the state. In addition, there were shutdowns and closures in the wood products industry. Declines in wood product employment began falling in 2000, but since 2010 it has hovered in the 2,600 to 2,700 range.

The recent declines in forest industry employment are a continuation of a long-term trend. Forest industry employment in Montana has decreased by roughly 4,600 jobs or almost 39% since the 1980s. Labor earnings in the forest industry (the amount actually paid to workers) also declined by roughly the same percentage. These declines were relatively modest in the 1980s and 1990s, but have accelerated drastically since 2000.

The rapid growth of manufacturing was accompanied by numerous national and multi-national corporations making acquisitions in Montana during the past decade. Examples include GlaxoSmithKline (Hamilton), Boeing (Helena), Applied Materials (Kalispell) Newport (Bozeman) and FLIR (Bozeman). None of these facilities were started from scratch, but instead were acquired from existing Montana manufacturers. The Bureau of Labor Statistics (BLS) reports that there were 1,625 manufacturing establishments with employees in Montana during 2019.

The largest industries within manufacturing were fabricated metal products (215 establishments), food products (152 establishments) and miscellaneous manufacturing (146 establishments). Most manufacturers are small businesses, with about 70% having fewer than 20 employees. Between 2010 and 2019, beverage and tobacco, and plastics and fabricated metals, were the two manufacturing sectors with the fastest average annual growth rate, 5.9% and 5.0%, respectively, per year. Over the past 10 years, leather, plastics and rubber, and fabricated metals experienced the highest annual earnings growth, growing 7.4%, 7.2% and 7.2% respectively. It should be noted that leather manufacturing is one of the small manufacturing industries in the state.

Given that Montanans drink above the national average amounts of alcohol, it is not surprising that the alcoholic beverage industry is growing rapidly in Montana. Between 2010 and 2019, employment in distillers grew from 10 to 181, wineries from 19 to 62, and breweries from 192 to 1,074. The total number of establishments in this industry is 127 in 2019, up from 3 in 2010. According to data from the BLS, the first distilleries came online in 2011.

As with the rest of the country, Montana manufacturing was adversely affected. In the first quarter of 2020, manufacturing earnings fell 5% below 2019 levels and employment was 15% lower than last year. Nevertheless, Montana manufacturers have been active in the COVID-19 economy. Distillers have been producing hand sanitizers, filters for masks, face shields, and viral transport mediums for COVID-19 tests.

Robert Sonora is associate director and director of health care research at the Bureau of Business and Economic Research at the University of Montana.

Travel, Tourism and Recreation

Crowds Flock To Montana During COVID Summer

BY JEREMY SAGE

At the onset of 2020, tourism indicators for Montana pointed to an expected good year, building on a steadily increasing volume of visitors and spending in the state since the great recession. Entering 2020, Montana's hoteliers and similar facilities had collected a nominally increasing lodging facility use tax (4% of lodging costs) year over year (Figure 1). The COVID-19 pandemic changed these expectations and created a generally uncertain year for tourism dependent businesses.

As Montana was slow, in comparison with other states, to see an uptick in COVID-19 cases in the spring, the impacts and concerns were likewise slow, but arrived nonetheless. Cancellations crossed the spectrum of tourism-related businesses, from hotels to outfitters. During the first full quarter (April-June) of the pandemic, lodging facility use tax fell by 57% across the state. However, tax collections are not a direct correlation to visitors arriving to the state. On one hand the collections are impacted by changes in nightly lodging rates, which also fell during this time as demand declined. And on the other, it does not capture all visitor types coming to the state. As such, it represents only part of the story.

Tourism in Montana continues to be largely driven by the state's natural amenities, from national parks to state parks and other public lands, to the rivers, lakes and mountains throughout them all. The volume of visitation to these places represent another part of the story. As quarantines in Montana and across the West were lifted in late June and July, visitors flocked to these rural and amenity-rich locations. Yellowstone National Park experienced increased visitation over 2019 in every month from July to November; September and October set visitation records (Figure 2). Meanwhile, Glacier National Park total visitation remained down over 2019 throughout the summer, but received visitation spikes in October and November, with record volumes in both months (Figure 3). The eastern entrance to the park has remained closed throughout the year; meanwhile, the west gate to the park set record traffic counts every month from August to November. Thus, even though total visitation was down, those that did visit were concentrated on the western side of the park.

The two national parks and their gateway communities were not the only recipients of visitors fleeing high density areas and seeking outdoor recreation opportunities. Montana's state parks received over three million visitors in the first nine months of the year, up 24.4% over 2019.

The large volume of visitation to Montana's open spaces over the summer and into the fall resulted in support for local businesses that dampened the fears in the spring. Quarter 3 (July-September) lodging facility use tax collections were buffered by this turnout and thus were only down 15% in the quarter over 2019, balancing out to a total reduction of 26% throughout the first three quarters. While that is a large shock to the tourism industry, it is muted compared to many others state who rely more on urban-based tourism and air travel markets.


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Figure 1. Lodging facility use tax. Source: Montana Department of Tourism and Business Development.

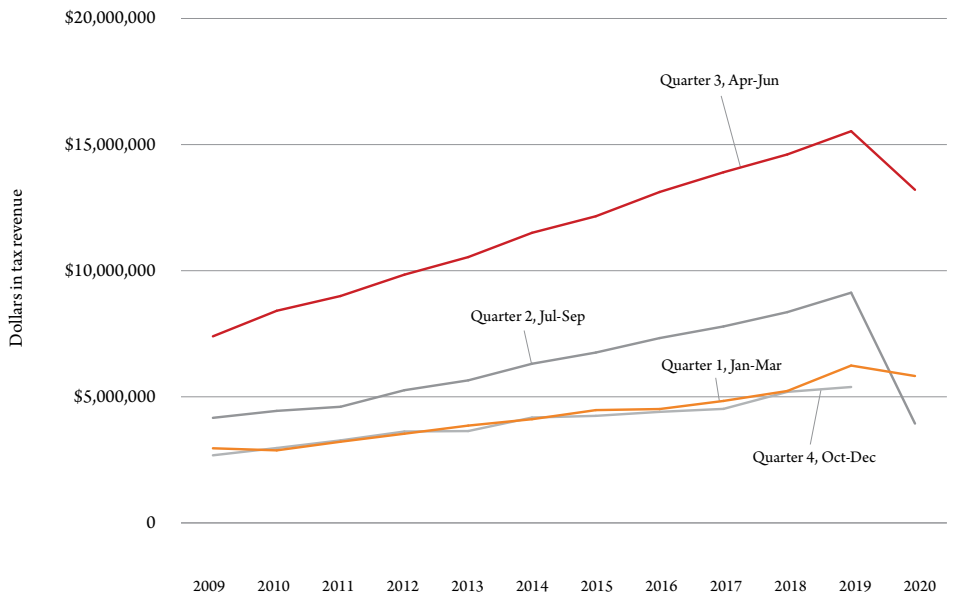
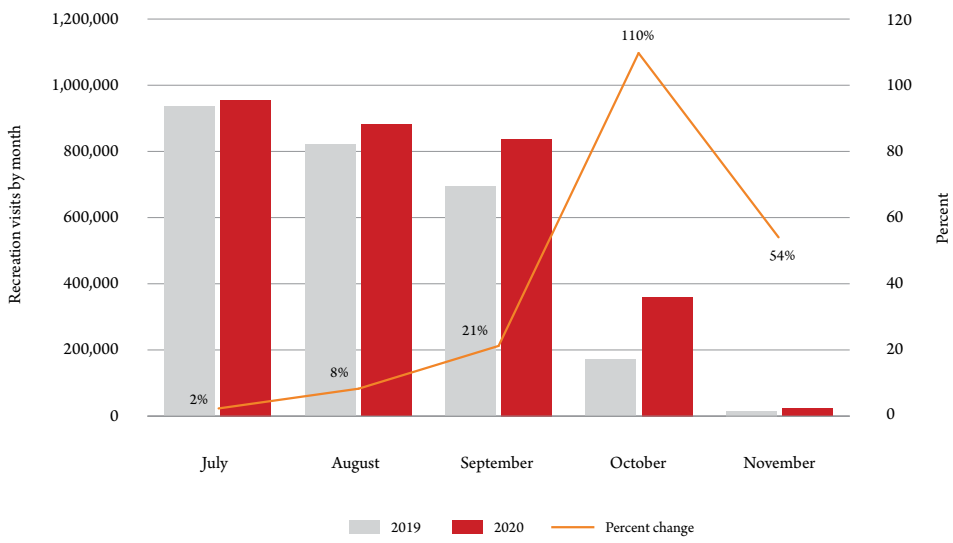


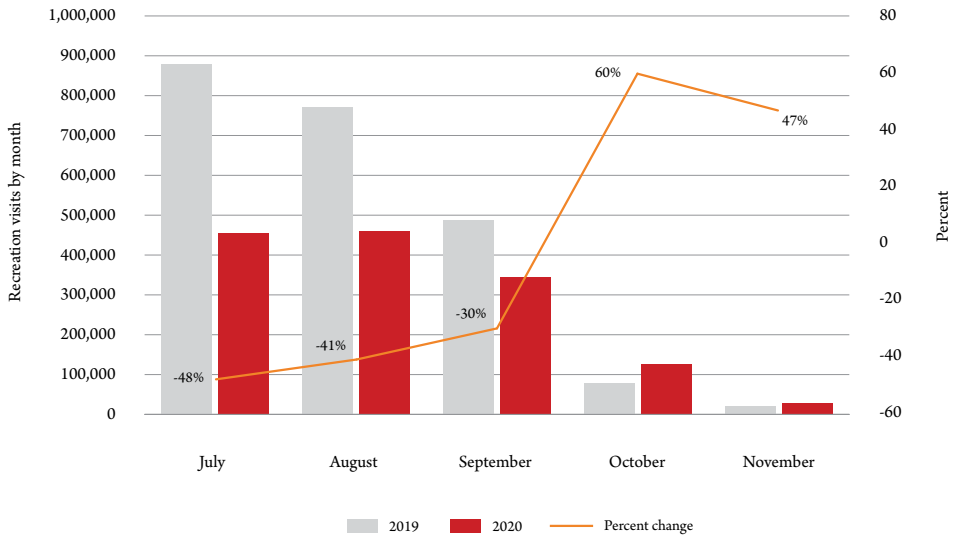
Figure 2. Yellowstone National Park visitation. Source: National Park Service, U.S. Department of Interior.



Moving into 2021, the uncertainty of the travel industry remains high both for Montana and nationwide as vaccine deployment begins in earnest in early 2021. In Montana, recovery is not only dependent upon the continued attraction of open spaces, but also the return of events to the larger urban centers of the state like Missoula and Billings. Expectations are low for a quick global tourism recovery, with travel spending in the U.S. not expected to rebound to 2019 levels through at least 2023.

Jeremy Sage is an associate research professor in the department of geography and the associate director of the Institute for Tourism and Recreation Research at the University of Montana.

Figure 3. Glacier National Park visitation. Source: National Park Service, U.S. Department of Interior.



Transportation and Logistics

2020 Was a Year of Disruption

BY PATRICK M. BARKEY

To say that the pandemic has challenged logistics would be a huge understatement. The global supply chains that lay hidden from view behind so many store shelves were exposed for all to see. When those shelves became bare, they were missing everything from toilet paper to bicycles. In the second quarter of 2020, imports of goods fell by 20% from year-ago levels, throwing a monkey wrench into the production of computers, pharmaceuticals and countless other durable goods that were in high demand.

The closure of international borders and the cratering of air travel sent air cargo rates soaring by more than 100% along the dominant cargo route to Asia and Europe. Shortages were exacerbated by human behavior patterns that did not follow historical patterns of previous recessions. The shift from restaurant to grocery demand for food is a case in point. Another has been the dramatic acceleration in online retail, which has pressured the capacity of last-mile delivery services in Montana and elsewhere.

The result has been a whipsaw cycle through global supply chains, as shortages in components produce shortages in subassemblies and eventually final products. The low availability and high cost of air cargo services to interrupt this cycle has added to the challenge.

Much of the rail freight in Montana is driven by container imports from Asian ports of origin using deep sea vessels. The 70.1 million container forecast from IHS Markit for 2020 represents a 22% drop from the previous year, which has implications for rail companies with a large Montana presence, like BNSF and MRL. On the other hand, the relatively strong performance of durable goods has increased demand for both rail and trucking, which should carry through into 2021.

The questions for the coming year are many. The pace of the overall recovery, and especially for imported goods and durables is one. How and when the economy will shift back to more traditional patterns of consumption, such as consumers buying more haircuts and fewer recreational vehicles, is another. Finally, there is the question of how or whether supply chains will adapt to be able to better handle disruptions in global transportation networks that proved so costly in 2020.

Patrick M. Barkey is director of the Bureau of Business and Economic Research at the University of Montana.

Health Care

COVID-19 Alters Health Care Landscape

BY ROBERT SONORA

This year health care news has been dominated by the COVID-19 pandemic. While 4% of the global population lives in the United States, the country accounts for 22% of all cases and 18% of global deaths. Given the rural nature of Montana, our state was largely spared through the first half of the year. As shown in Figure 1, Montana's cases and deaths only really started to climb in the month or so after Memorial Day, the unofficial beginning of summer.

This rise in illness could have been more problematic for Montanans without employer-based insurance. Nationally, 30% of Americans that lack employer insurance are uninsured. Medicaid eligibility was extended at the beginning of 2020, but added requirements were expected to reduce eligible Montanans by about 4%. However, over the course of the year nearly 5,000 thousand adult residents and 2,000 children were added.

The recession resulting from the COVID-19 pandemic is the culmination of two effects: policy intended to reduce the spread of the disease and human behavior. The partial reopening of the economy has manifested in a short spurt of growth in the third quarter, but the fourth quarter is slowing. Congress recently passed a $900 billion stimulus which should help increase expenditures. There is additional optimism in the form of two COVID-19 vaccines, though their effects on the economy will take upwards of a year to be fully realized.

The percentage of residents who expect to lose income this year has reached 29%. While remote work has been touted as a remedy, the strategy has been less successful in Montana where only 27% of employees telework.

Currently, there are over 26,000 unemployed Montanans and this could worsen over the next few months. Residents

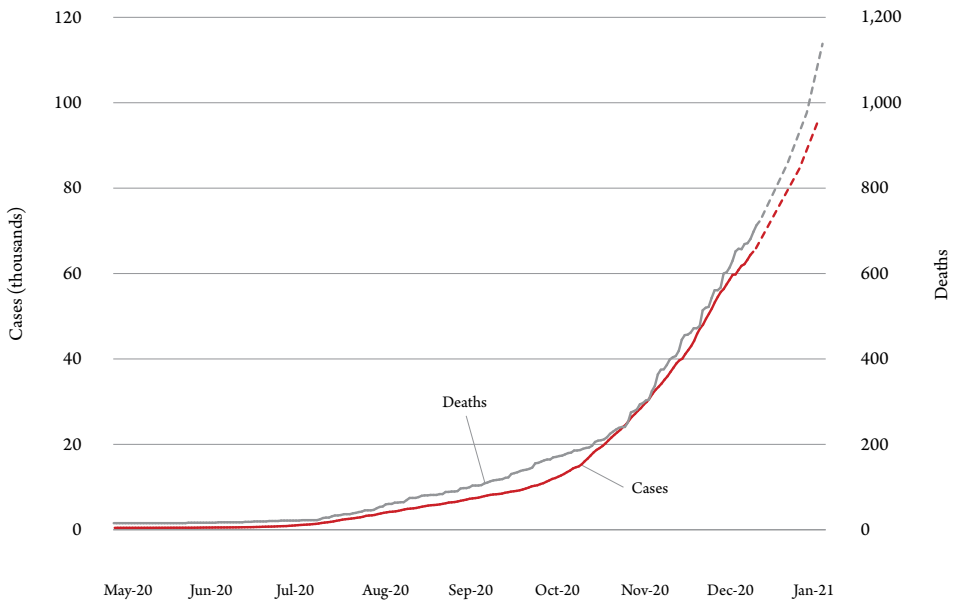


Figure 1. COVID-19 cases and deaths in Montana. Source: Johns Hopkins University, Coronavirus Resource Center.

are beginning entrench themselves, which has been particularly harmful to service industries. Additionally, demand for health and non-health related services have declined with increased hospitalizations due to COVID-19. Plus, vaccinations will not be widely available until mid-2021, which means there will be continued downward demand pressure on the economy for most of the year.

Will there be significant changes to health and health policy after the pandemic? As with the 1918 flu pandemic, this current pandemic has highlighted short comings in our health system. Health professionals and policymakers foresee several changes. First, a greater use of telemedicine, which is particularly important for rural states, such as Montana. Second, a concentration on providing high-value and preventative care. And a need to reconsider how health insurance is provided, as health care providers have lost a significant portion of the revenue due to the pandemic.

The COVID-19 pandemic has also had indirect health effects on those who have not contracted the disease. Over-stretched health care centers have fewer resources to divert towards non-COVID illnesses and a general fear of hospitals has accelerated negative health trends in residents. Additionally, we've had to put other health care crises aside to concentrate on COVID-19, such as mental illness and opioid abuse.

Robert Sonora is associate director and director of health care research at the Bureau of Business and Economic Research at the University of Montana.

Technology and Innovation

Remote Work, Zoom Towns and a Spotlight on Biotech

BY CHRISTINA QUICK HENDERSON

Though the final 2020 data is still incoming, most indicators show Montana's tech industry has weathered the COVID-19 pandemic well overall.

Montana's multi-year trend of fast tech growth held steady coming into 2020. The state's high-tech firms grew nine times faster than other sectors and generated a new high of $2.5 billion in revenues in 2019, according to a survey conducted by the Bureau of Business and Economic Research. Bozeman's Next Frontier Capital reported $150 million in venture capital investment in Montana companies in 2019, a new record.

The onset of the coronavirus and subsequent shutdowns have led to job losses for a few high-tech and manufacturing companies that abruptly lost revenue. Funds available through the federal CARES Act and its Paycheck Protection Program helped to limit the damage.

For many tech companies, the shift to working from home or with new workplace safety protocols was smoother than expected. For some firms, growth continued or even accelerated.

In August, Ascent Vision Technologies (AVT), a veteran-owned firm specializing in counter-drone technology and aerial surveillance systems was acquired by CACI International for $350 million. AVT employs 60 people in Montana and plans to keep its headquarters in Bozeman.

Montana's robust biotech industry rose to meet the challenges of COVID-19, accelerating advances in virus

testing, vaccine development and telemedicine. In July, Missoula-based therapeutics company Inimmune secured $22 million Series A investment from Two Bear Capital in Whitefish, in addition to over $30 million awarded in recent NIH research grants and contracts.

The pandemic has spurred three trends that could prove transformative for Montana's tech industry in 2021.

1) Rise of Remote Work

The new normal of working from home has sparked changes in workplace culture that are likely to stick long term. The shift presents an opportunity for Montana companies to recruit skilled remote workers. It also could benefit rural communities that attract former residents home who bring high-paying remote jobs or allow long-term community members to gain access to more secure employment. However, this dynamic may deplete the local talent pool if out-of-state firms hire Montana talent and pay above-market wages. It also requires better access to broadband for underserved communities.

2) Emerging Zoom Towns

Montana cities such as Bozeman, Missoula and Butte have been identified by the New York Times, Bloomberg and Forbes as zoom towns – relatively affordable vacation destinations where populations are rising as remote workers relocate. Montana's outdoor amenities and relatively low cost of living have long made it attractive to tech workers, helping to fuel economic growth. But the new influx of residents is also driving up housing costs and adding to the stratifying growing pains of Montana communities.

3) Changing Career Pathways

The demand for tech talent in Montana remains strong, but there is a gap between the skills and experience of local workforce and the requirements of available roles. New graduates and displaced workers are often eager to transition into tech jobs, but need support finding career pathways in the field. Leaders in business, education and government will need to collaborate to help Montana's workforce adapt to a tech-driven economy.

Christina Quick Henderson is executive director of the Montana High Tech Business Alliance.

Real Estate and Construction

The Seller's Market Continues

BY BRANDON BRIDGE

The extreme amount of economic uncertainty experienced in 2020 has had varying impacts on real estate and construction markets in Montana. A full understanding of the market anxiety and dynamics that we are experiencing in 2020 will require several more years of study, data collection and revision, as well as hindsight. In the meantime, we will need to rely on currently available data for insight into these markets. The housing price indices (HPI) produced by the Federal Housing Finance Agency can give us a glimpse into how the housing market in Montana has responded to the initial waves of economic uncertainty brought on in 2020.

We can see in Figure 1 that the Montana HPI deviated slightly from its upward trajectory and remained flat during the first quarter of 2020. This deviation coincides with the lockdowns and relative lack of economic activity taking place in February and March of 2020. The most recent quarter of HPI data shows that the upward trajectory came back strong in Q2 2020. And according to the most recent data, prices

Figure 1. Housing price indices, 2000Q1-2020Q2. Source: Federal Housing Finance Agency.

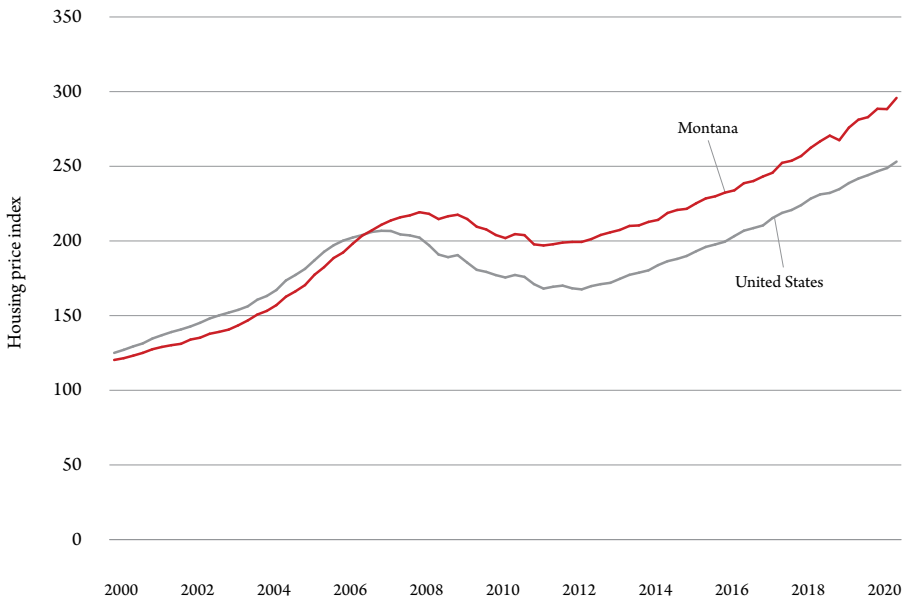
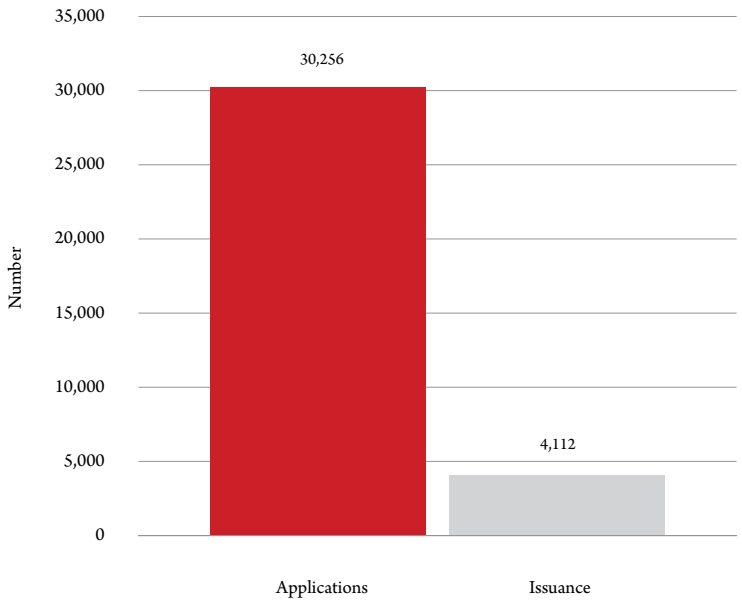


Figure 2. Housing choice voucher applications and issuance, 2016-20. Source: Montana Department of Commerce.



have continued to show strength in the major housing markets across the state. The strongest price appreciation continues to be in Flathead, Missoula and Gallatin counties, with the median sale price in Gallatin County (2019) being a record $389,000.

While roaring home prices are beneficial for home owners and those working in the real estate and construction industries, they also increase the stark difficulty of housing affordability. Low interest rates are capitalized into higher asset prices, and when this happens those without assets suffer. This is most evidently the case when property values and rents are outpacing real wages, creating a strain on median wage earning households. This has been the case in Montana for several years. One illustration of this phenomenon can be found in Figure 2, which shows the number of applications by Montanans for housing choice vouchers (housing subsidies issued by the U.S. Department of Housing and Urban Development) since 2016, along with the number of vouchers issued.

Revised sales data show steadily rising volumes in Montana since 2012. This is seen in Figure 3. Sales volumes in Flathead, Gallatin, Lewis and Clark, and Missoula counties dipped in 2018 relative to their 2017 volumes. But 2019 has brought volumes back above 2017 levels in all of the primary population centers in the state except Gallatin County, which has seen its third consecutive decline in yearly sales volumes. Despite this decline, Gallatin County remains the second-highest county for sales volumes with 2,473 home sales in 2019. The highest sales volumes in Montana are unsurprisingly taking place in the highest population center, Yellowstone County, which had 2,635 home sales in 2019.

One indicator of strength in the Montana housing market is the relatively low rate of delinquencies in Montana mortgages. Figure 4 shows the percent of FHA mortgages originating in the last two years that are currently seriously delinquent for both the U.S. and Montana overall, as well as the population centers in the state. A mortgage is considered seriously delinquent if it is more than 90 days delinquent on mortgage payments. We can see that Montana fares much better than the U.S. average, with only a 4.86% FHA seriously delinquent rate compared to 7.77% for the U.S. overall. Furthermore, we can see that only Lewis and Clark, Gallatin and Yellowstone Counties have a higher serious delinquency rate than the state average, with the rest of the population centers exhibiting less than average delinquency risk.

More data and time will aid our understanding of the market responses to the economic shocks of 2020. In the near-term however we anticipate that the real estate and construction markets in Montana will remain strong and trending upward through this period of low interest rates, low inventories, and high housing demand in Montana.

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Figure 3. Montana home sales. Source: Montana Department of Revenue.

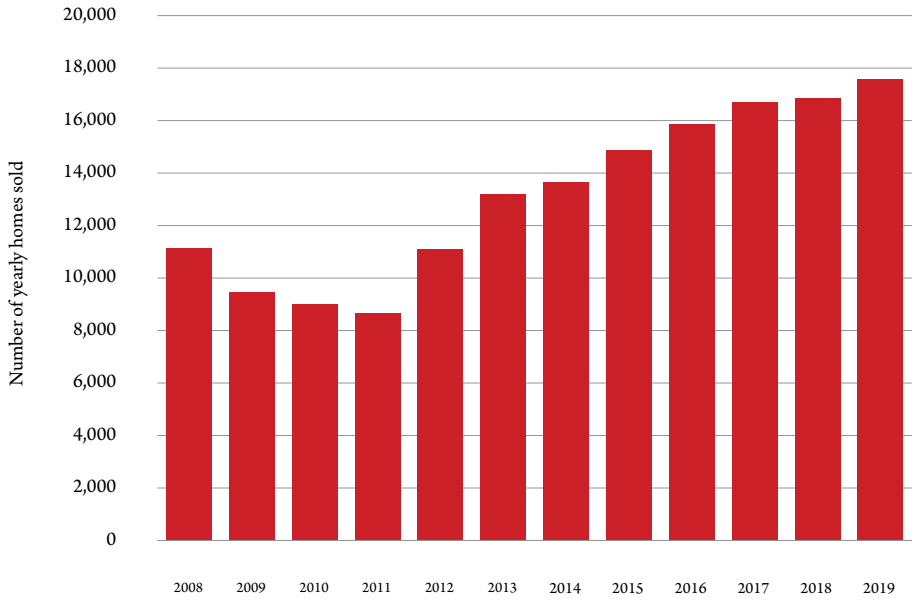
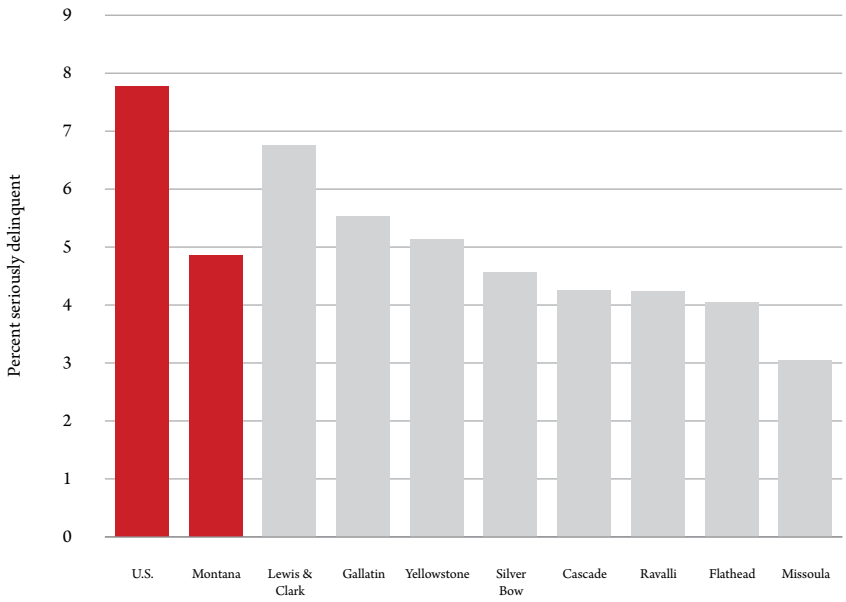


Figure 4. Percent of originations seriously delinquent. Source: FHA Neighborhood Watch.



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