



The State of Missoula's Workforce



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State of Missoula's Workforce: Summary

Missoula wants to ensure that residents have more opportunities to reach their potential and support their families. It also wants to ensure that businesses have the opportunity to access the workers they need to compete and thrive. To achieve these objectives, Missoula needs a strong workforce--one that is capable of expanding, resilient to shocks, and employed efficiently.

In this study, we explore the state of Missoula's workforce. The report has three parts. In this first section, we summarize several key findings. The second section expands the points included in this summary in more detail and identifies key areas for policymakers to track and address. Finally, the third section provides an appendix that includes a deeper dive with additional context, data, and analysis.

Key Findings

1. Pre-COVID (between 2015-2019), Missoula was doing well. Labor force participation was high (70%), unemployment was low (3.3%), and total inflation-adjusted earnings were growing (up 20%, top 12% of all counties) as employment, hours worked, and hourly wages all went up (11%, 4%, and 10% respectively).¹

2. COVID depressed employment and labor force participation. While the unemployment rate has recovered to pre-COVID levels, as of June 2021, non-farm employment remains down by 2,500 jobs or 4%. Employment in the goods-producing sector has returned to pre-COVID peaks. Missoula's remaining jobs deficit is in services. Roughly 35% of the deficit in services employment is in leisure and hospitality. In contrast to employment, Missoulians' wages rose during COVID. One measure of average hourly wages in Missoula rose by almost \$3/hour (or 11%) between Feb. 2020 and June 2021.²

3. Understanding Missoula's workforce over the long-run requires understanding capacity and utilization.

- A. Capacity (or potential) = Population x Participation x Productivity
- B. Utilization (or efficiency) = Are workers employed in jobs that make good use of their skills/abilities/interests?

4. Population = 100,000 working-age people + 3,000-7,000 commuters + 1,000 net migrants

¹ Sources: Labor force participation (2019 American Community Survey, unemployment rate (Local Area Unemployment Statistics annual average for 2019), earnings growth (Bureau of Economic Analysis Regional Economic Accounts total earnings by place of work between 2014 and 2019) adjusted for inflation using PCE chain-price index, employment (Bureau of Economic Analysis total employment), average weekly hours and average hourly wages (Bureau of Labor Statistics State and Area Employment, Hours, and Earnings for private sector, non-farm employees).

² Sources: Non-farm employment, employment by sector, and hourly wages (Bureau of Labor Statistics State and Area Employment, Hours, and Earnings for June 2021 relative to Feb 2020). Note: some wage growth be a mirage due to disproportionate employment reductions in lower-wage jobs.

Missoula is a nice place; many people want to live here. To the extent that workers move away (or don't come), it is due to limited job opportunities (particularly for spouses) or high housing prices relative to wages.

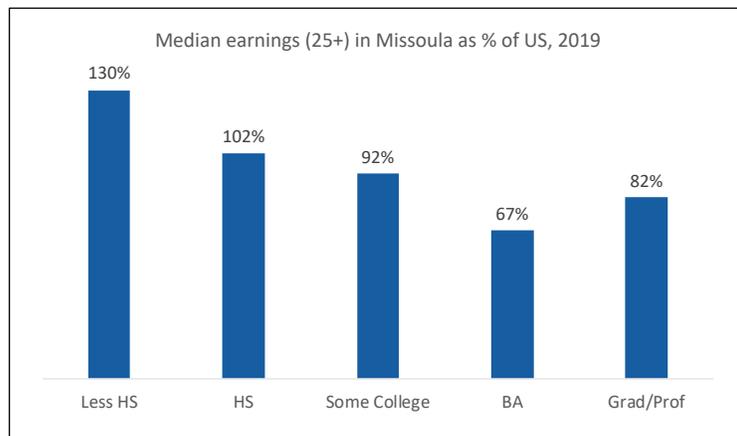
To boost capacity by growing the population, Missoula must keep its current population and attract students or workers from elsewhere. This is hard in the current environment. **By far, housing costs/availability was the most discussed problem in Missoula's current labor market.** Home values are up over 32% in Missoula County, rents are up over 10%, and vacancy rates are way down.³

Many Missoula employers report hiring people who cannot find housing. Others report existing employees losing their current housing and struggling to find alternatives (and many choosing to move elsewhere). Missoula's economic opportunities, cultural and consumer amenities, etc. are all, in part, a function of the set of workers who can afford to live here. Big, persistent shocks to housing prices and availability will ripple through the rest of the economy, and change Missoula's trajectory.

5. Participation – Pre-COVID 70% of Missoulians 16+ (and 85% of those 20-64) participated in the labor force. This placed Missoula in the top 5% of all counties. If Missoula returns to this level post-COVID, Missoula will have limited room to increase capacity by drawing people into the labor force. However, hours per worker were relatively low pre-COVID, so Missoula may have a small amount of under-used capacity available.

While workers and firms discussed various participation challenges—wages, seasonal work, health, mental health, addiction, transportation, etc., —childcare access was major theme. 84% of Missoula kids under 6 and 88% of Missoula kids 6-17 live in a household where all parents work, so access to reliable childcare is essential for parents to work at their potential.⁴

6. Productivity – Missoula has a highly educated population. 43% of Missoulians over age 25 have a Bachelor's degree. However, like many small cities, earnings in Missoula are low (75-80% of US level). Median earnings are particularly low for people with a BA only (67% of US level in 2019).⁵



The productive capacity of the workforce rises with the

³ Sources: Home price appreciation (Zillow Home Value Index, FHFA House Price Index), rents (SterlingCRE), vacancies (Missoula Organization of Realtors, SterlingCRE, Census Bureau CPS/HVS).

⁴ Sources: Labor Force Participation (American Community Survey, 2019)

⁵ Source: American Community Survey, 2019, Bureau of Economic Analysis, BLS State and Area Data & Occupation Employment Statistics.

education, skills, experience, and wisdom of the population. The University of Montana and Missoula College provide Missoula with an advantage over many other places in expanding our productive capacity; however, it is a never-ending task to ensure that Missoula's education/training capacity is used efficiently and is well-adapted to expected workforce needs.

Productivity also rises when capacity is utilized more efficiently, when demand for workers grows and each worker can find an employer that uses all of their skills and abilities. As such, it is always important to make sure that students and workers know about the range of opportunities available (and where to go if they want to learn about what's changed since they last looked for opportunities).

I. Introduction

A community's ability to grow and provide more economic opportunity for its residents depends on its capacity and on how well it utilizes that capacity. Capacity has a number of components – natural resources, physical infrastructure, institutions, and workers.

Workforce capacity is particularly essential. Without a sufficient workforce, growth is inhibited. In Montana, according to the 2016 Annual Survey of Entrepreneurs, 42 percent of Montana's employees work at firms that claim that difficulty finding qualified workers adversely affects their profitability. This is one of the highest percentages among all states.

While a specific firm's difficulty finding workers may reflect issues at that firm (e.g., insufficient compensation), it may also reflect workforce constraints. Ultimately, it is difficult to increase local prosperity without increasing workforce capacity.

Pre-COVID, Missoula's labor force included nearly 88,000 workers and approximately 2,000 unemployed people.⁶ However, the workforce consists of more than just the current labor force. The workforce changes. People move into and out of Missoula. People move into and out of the labor force. People also change over time, acquiring skills, changing what they want to do, etc. A workforce study must consider the forces that shape Missoula's population, labor force participation, and productivity.

Four fundamental forces shape Missoula's workforce. First, there are the workers themselves, their skills, and their desire to work. Second, there are the employers, their need for workers, and the wages they can afford to pay. Third, there are the institutions that help workers develop and change their skills. Finally, there are the institutions that help match workers and employers. Local success requires each of these elements to operate efficiently.

II. Missoula's Pre-COVID Workforce

While all labor markets have multiple challenges in each of these areas, pre-COVID, Missoula's labor market was operating relatively well. Between 2014-2019, total inflation-adjusted earnings in Missoula increased by 20 percent (or over \$700 million) (Figure 1).⁷ Missoula's earnings growth ranked in the top 12 percent of all counties over this period. This fast growth represented a return to the pattern that Missoula experienced before the Great Recession.

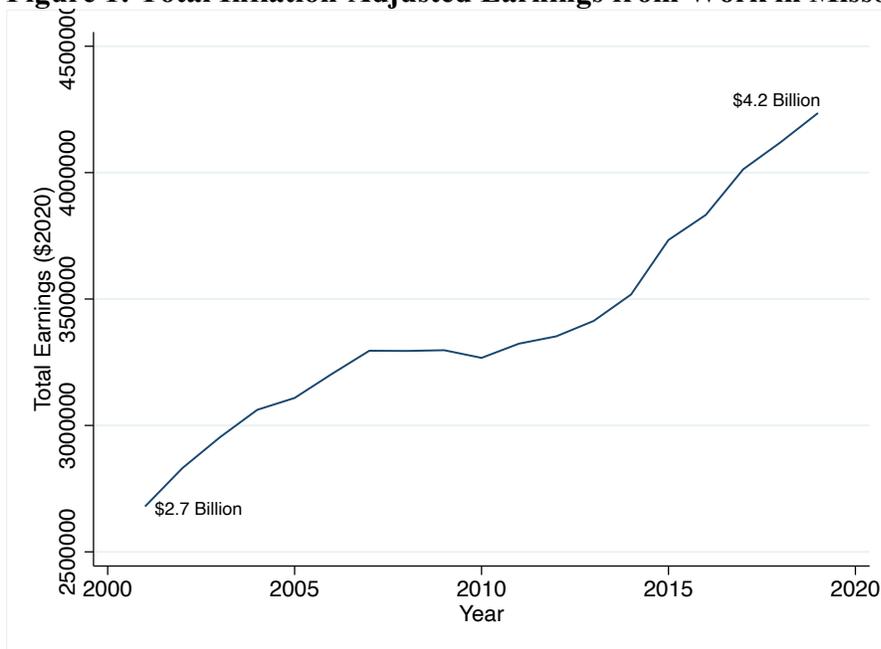
Missoula's earnings growth over this period reflected both rising employment and rising wages. Employment grew by an average of 2 percent per year (roughly 1200 jobs), and inflation-adjusted earnings per worker grew by an average of 1.6 percent.⁸

⁶ Total employment obtained from Bureau of Economic Analysis. Total unemployed obtained from Bureau of Labor Statistics Local Area Unemployment Statistics.

⁷ Bureau of Economic Analysis

⁸ Data from Bureau of Economic Analysis. See Appendix 3 for additional information.

Figure 1: Total Inflation-Adjusted Earnings from Work in Missoula County, 2001-2019



Source: ABMJ analysis of Bureau of Economic Analysis data. Nominal values adjusted for inflation using PCE Index obtained from FRED.

Pre-COVID, Missoula also had one of the highest labor force participation rates and one of the lowest unemployment rates in the country. Seventy percent of Missoulians over age 15 participated in the labor force.⁹ This ranked Missoula in the top five percent of all counties. Missoula’s unemployment rate was 3 percent.¹⁰ This ranked Missoula in the top 25 percent of all counties nationwide.

Pre-COVID growth was relatively widespread (Figure 2). Most industries in Missoula grew. However, construction, professional services, manufacturing, real estate, and finance and insurance experienced particularly robust growth.

Missoula’s pre-COVID growth pattern differed from the pre-Great Recession period. During the prior expansion, manufacturing was shrinking while construction and finance and insurance grew relatively slowly.¹¹ In contrast, arts/entertainment/recreation and administrative support (two industries that grew more slowly recently) were Missoula’s fastest growing industries. The fact that Missoula’s economy can grow in different ways is important. It suggests that Missoula’s workforce can shift to support growth in different areas.

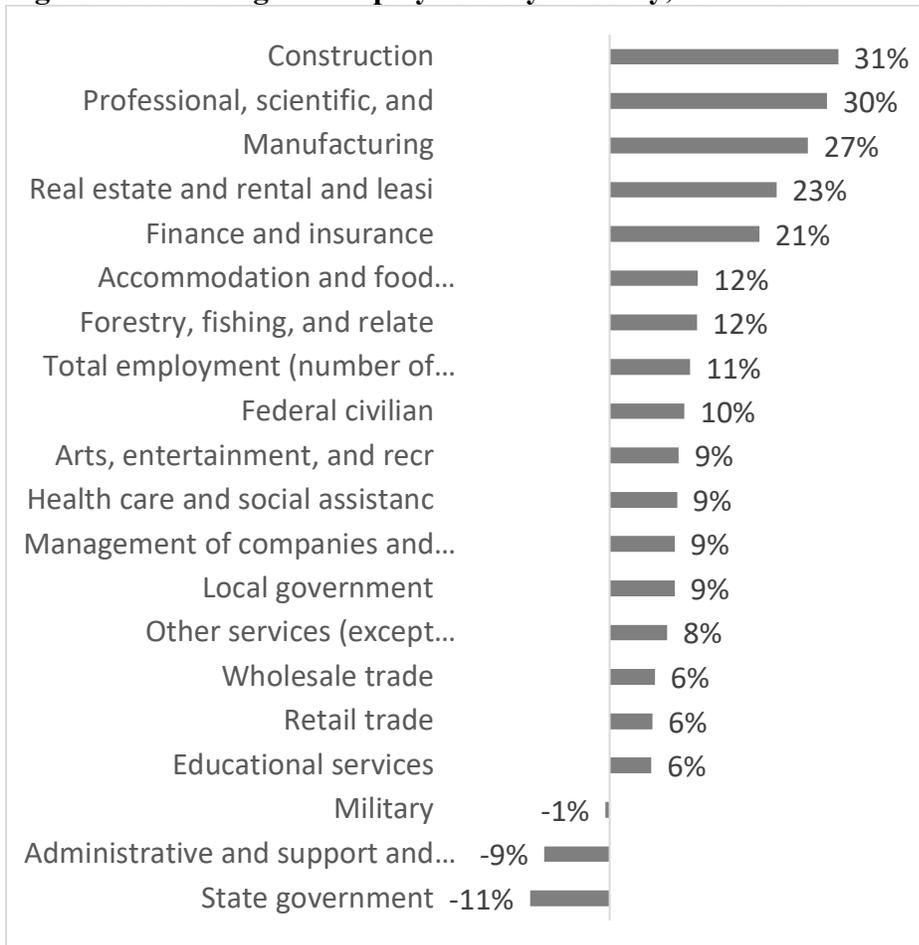
These facts do not explain exactly what was working well in Missoula pre-COVID, but they do indicate that the different aspects of Missoula’s labor market were operating well enough to allow Missoula to generally meet employer and worker needs and grow relatively quickly.

⁹ Data from American Community Survey 2015-2019. See Section IV.B and Appendix 10.B. for additional information.

¹⁰ Data from BLS Local Area Unemployment Statistics.

¹¹ See Appendix 6 for additional information.

Figure 2: % Change in Employment by industry, 2014-2019



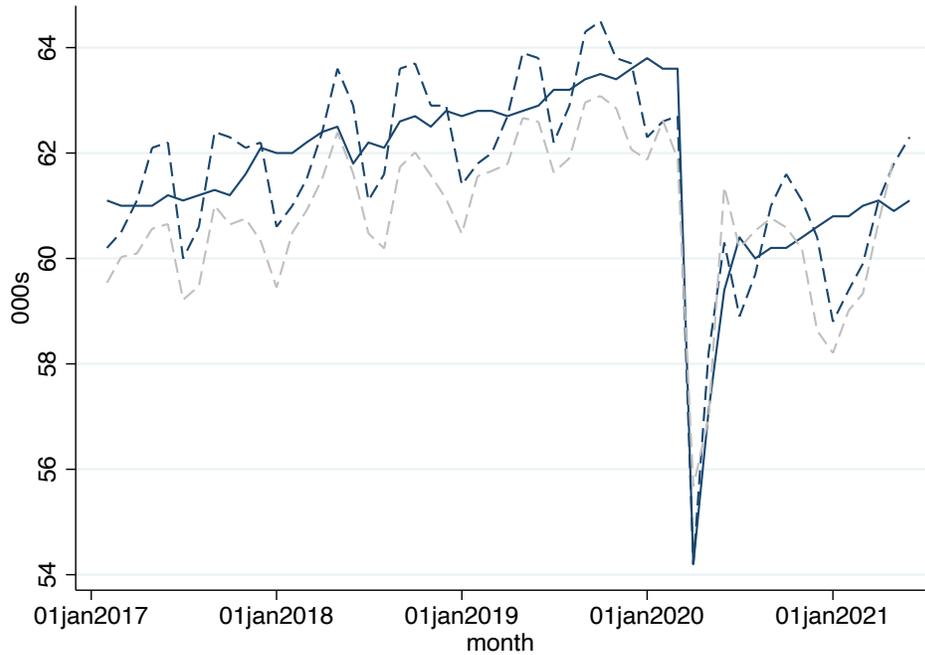
Source: ABMJ analysis of BEA data.

III. The COVID-19 Pandemic (COVID)

COVID represents a new test of Missoula’s workforce resilience. COVID shocked the economy (Figure 3). During the initial COVID phase, Missoula’s employment fell by approximately 15 percent. Employment snapped back to roughly 95 percent of the pre-COVID level by the summer of 2020, but the recovery has slowed since. Even though firms are looking to hire (job postings in Montana are over 60 percent above pre-pandemic levels), employment remains depressed.¹² As of June 2021, Missoula’s seasonally adjusted non-farm employment was four percent (2,500 jobs) below the pre-COVID level.

¹² Data on job postings in Montana obtained from FRED Job Postings on Indeed.
<https://fred.stlouisfed.org/series/IHLCHGUSMT>

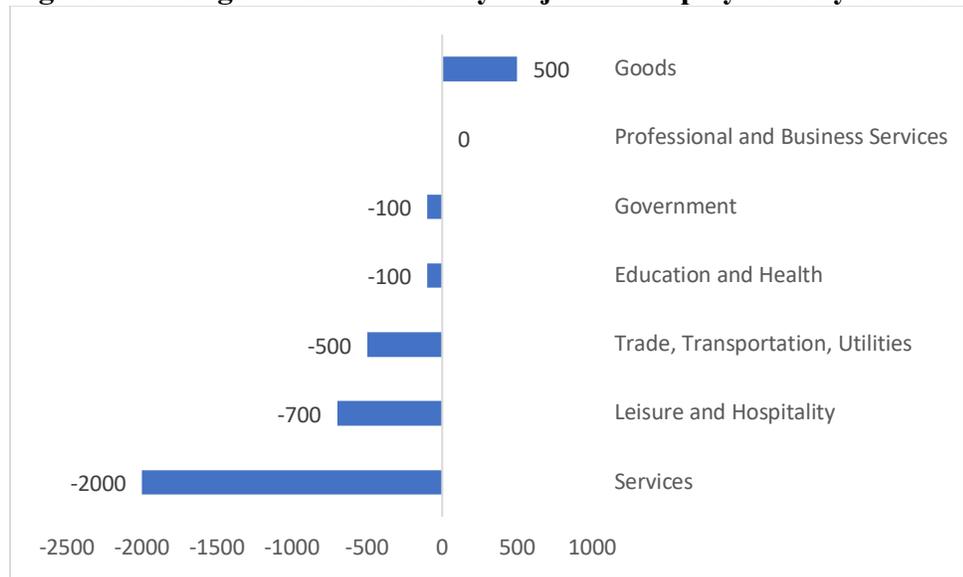
Figure 3: Missoula Employment Jan 2017-June 2021, Seasonally-Adjusted (SAE data -- solid blue line) and Not Seasonally-Adjusted (SAE & LAUS – dashed)



Source: Bureau of Labor Statistics State and Area Employment data and Local Area Unemployment Statistics.

At the industry level, recent data are limited. However, the data available suggests that employment in goods-producing industries (e.g., manufacturing and construction) has surpassed the pre-pandemic level (Figure 4). In contrast, employment in service industries remains depressed, particularly in leisure and hospitality. Leisure and hospitality employment in June 2021 was 700 jobs (or 8 percent) below the June 2019 level.

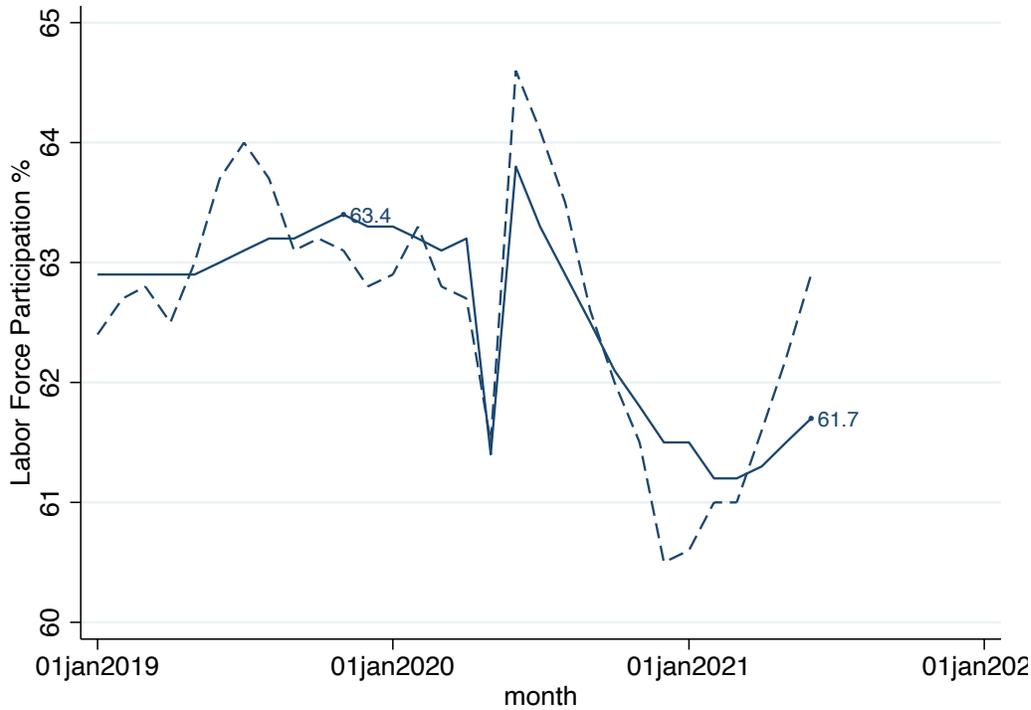
Figure 4: Change in Not-Seasonally Adjusted Employment by Sector June 2021-June 2019



Source: Analysis of BLS State and Area Employment Data

The primary impediment to returning to the pre-COVID employment level is labor force participation. Missoula’s unemployment rate has already returned to its pre-pandemic level, 3.2 percent. Depressed employment combined with a recovered unemployment rate implies that Missoula’s labor force participation remains depressed. While we do not have a monthly labor force participation rate for Missoula, Montana’s labor force participation rate remains almost two percentage points below the pre-COVID peak (Figure 5).

Figure 5: Montana Labor Force Participation Rate, Jan 2019-June 2021



Source: Analysis of BLS Local Area Unemployment Statistics data.

In part, Missoula’s employers have responded to the tightness in the labor market by boosting wages. Missoula’s average hourly wage rose from \$24.12 in Feb 2020 to \$26.75 in June 2021.¹³ While part of this 11 percent increase reflects “composition effects” (the average rising due to continued lower employment in lower-wage sectors), much of the increase likely reflects real wage growth.¹⁴

It remains unclear where Missoula’s economy will go from here. In the short run, we know that Missoula needs to recover from the COVID-19 shock. However, the specific challenges Missoula will face as it adapts to the post-COVID reality are unknown. Several significant questions remain:

¹³ Data from BLS State and Area Employment data.

¹⁴ Rouse, C. and Gimbel, M. (2021) The Pandemic’s Effect of Measured Wage Growth. <https://www.whitehouse.gov/cea/blog/2021/04/19/the-pandemics-effect-on-measured-wage-growth/>

1. Will labor force participation recover, or have COVID-related shocks driven people from the labor force permanently?
2. How will increased work from home (remote work) options change the labor supply available to Missoula firms? Will Missoula workers seek higher wages in other markets? Will Missoula employers seek workers elsewhere? Will Missoula's housing supply cater toward workers who work elsewhere, reducing the workforce available to local employers?
3. Will demand for goods and services shift in ways that require workers to change between industries or occupations?

As time passes, we will learn the answers to these questions and understand the workforce challenges they create for Missoula. However, until we know Missoula's specific long-term challenges, it is best to focus on the fundamentals--capacity and utilization. How much capacity does Missoula have, and how can we grow it and employ it more efficiently?

IV. Missoula's Workforce Capacity

Workforce capacity is governed by a simple equation:

$$\text{Capacity} = \text{Population} \times \text{Participation} \times \text{Productivity}$$

That is, Missoula's capacity to generate output through work depends on how many people are available, how much effort they are willing to devote to work, and how much they can produce per unit of effort. We explore each of these areas in more detail in the remainder of this report.

A. Population

Missoula County's population reached 121,630 in 2020.¹⁵ Missoula added slightly more than 12,000 people between 2010 and 2020.¹⁶ However, the composition of Missoula's population changed over this period (Figure 6). Relative to 2010, Missoula has nearly 2,000 fewer children under 10, 3,500 fewer people aged 45-60, and slightly fewer 20-24-year-olds; however, it has more 10-14-year-olds and 24-44-year-olds, and over 6,000 more 60-79-year-olds.

The shifting age distribution of Missoula's population suggests that Missoula may face several challenges:

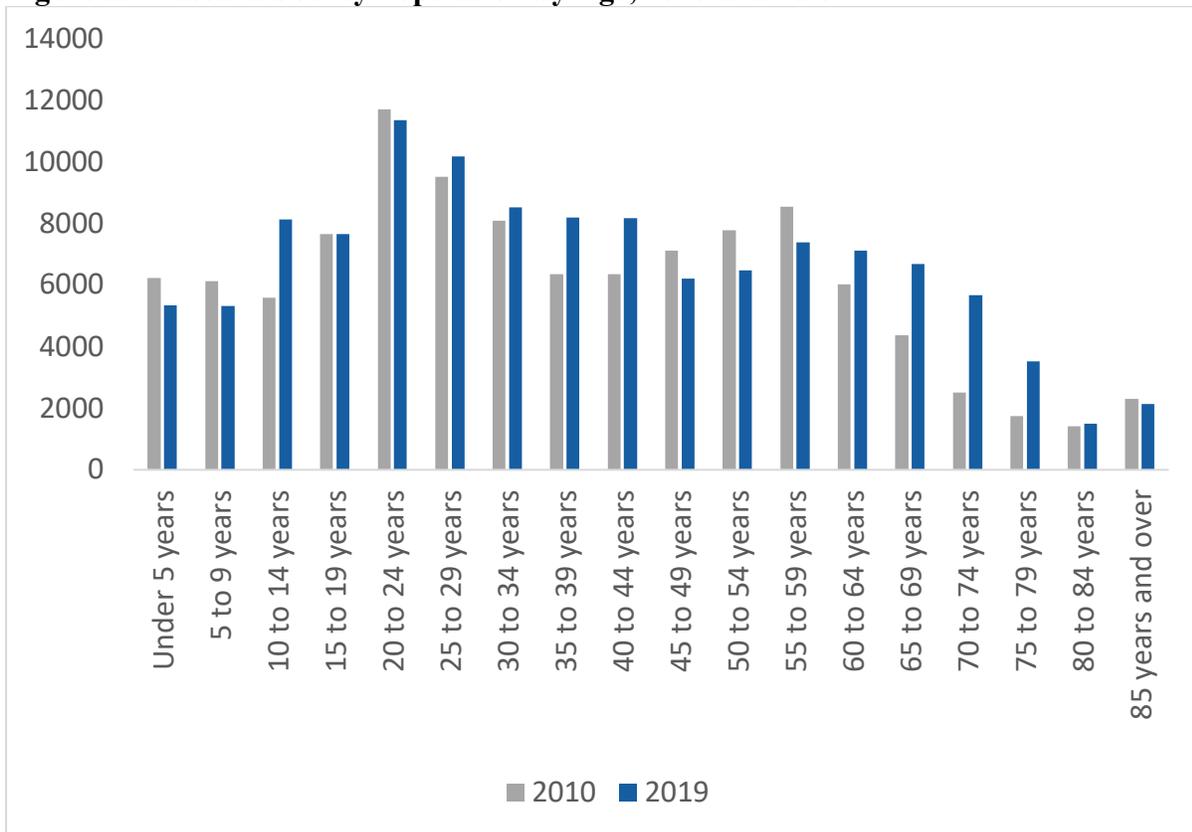
- Fewer college students in the pipeline;
- An ongoing wave of retirements (and a growing share of housing filled by people not in the labor force);
- Fewer 45-60-year-olds to fill more experienced roles;
- Fewer young kids to age into the workforce over the long-term.

¹⁵ Census Bureau 2020 County Population Estimates

¹⁶ Census Bureau 2020 County Population Estimates

Missoula will need to fill the gaps in its workforce capacity created by the demographic shifts.

Figure 6: Missoula County Population by Age, 2010 and 2019



Source: American Community Survey 2010 and 2019.

Fortunately, for purposes of understanding Missoula’s workforce capacity, two additional groups matter--potential commuters and potential migrants. Missoula can tap both of these to help meet its workforce needs.

Missoula’s workforce benefits from a significant number of commuters. It is difficult to quantify the number of people who commute to work in Missoula; however, according to the Bureau of Economic Analysis data, non-residents earned seven percent of all earnings from work in Missoula.¹⁷ This suggests that several thousand people (roughly 3,000-7,000) likely commute into Missoula.

Missoula also benefits from a significant amount of net migration. Net migrants contributed over 75 percent of Missoula’s population growth over the past decade.¹⁸ Missoula’s ability to attract migrants allows it to expand its workforce and recruit people from elsewhere to fill specific needs. For instance, in 2019, over 50 percent of people hired to jobs in Missoula

¹⁷ See Appendix 10.A.3 for additional information.

¹⁸ See Appendix 10.A for additional information.

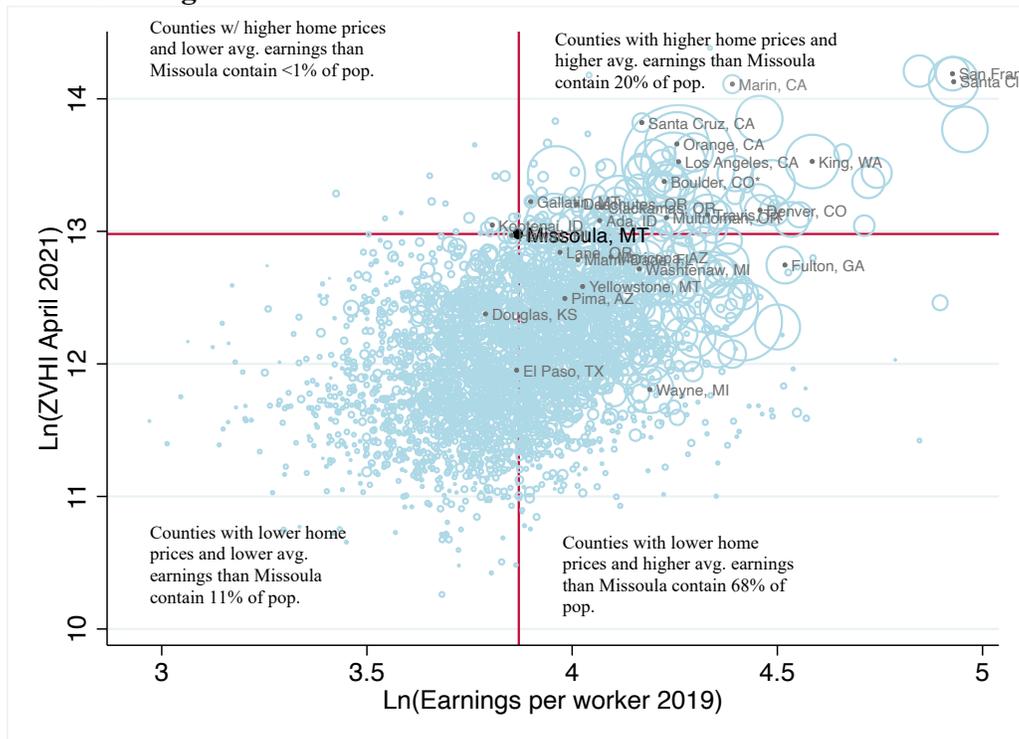
without a long break in employment (i.e., job-to-job hires) came from outside Missoula County.¹⁹

Given the importance of migration to Missoula’s workforce capacity, it is important to understand what drives migration to Missoula. Generally, people want to move to places that make them better off. Living in a particular location can make someone better off in a variety of ways, e.g.: the area may offer better job opportunities, a lower cost of living, or a better quality of life.

Different people may move to the same place for different reasons. Some people move for better job opportunities, some move for the cost of living, and some move for quality of life. Migration to (and from) Missoula reflects each of these forces.

Quality of life is one of the most often cited reasons people come to Missoula. Consistent with this, wages in Missoula tend to be low and the cost of living tends to be high (particularly relative to wages). While individual circumstances vary, nationally only a tiny share of people live in a county with lower housing prices and higher average wages (Figure 7).

Figure 7: Share of people living in counties with higher/lower housing prices and higher/lower earnings than Missoula



Source: Analysis of home value data from Zillow and earnings per worker from BEA.

However, quality of life is not the only determinant of migration. Many people move to Missoula from other parts of Montana, attracted, in part, by better job opportunities, while others (particularly people from large coastal metros) are attracted to Missoula because it offers a lower

¹⁹ See Appendix 10.A for additional information.

cost of living.²⁰ These are the same reasons many people leave Missoula. The two main reasons employees left firms that participated in focus groups were lack of opportunities—particularly for spouses or other family members, and a lack of affordable housing.

Given the importance of migration to Missoula’s workforce capacity, shocks to Missoula’s attractiveness relative to other places may significantly impact Missoula’s workforce. The COVID-induced shock to Missoula’s housing market represents a particularly significant concern.

One-hundred percent of participants in focus groups in spring 2021 raised concerns about housing in Missoula. In recent months, finding housing in Missoula became very difficult. Vacancies are almost non-existent--the rental vacancy rate fell to 0.4 percent in 2021Q2, roughly ten times below “healthy” levels.²¹

Table 1: Percent change in Zillow Home Value Index (All Homes, Smoothed, Seasonally-Adjusted), Feb. 2020-June 2021.

| Rank | Metro/Micro Area | % change in ZHVI |
|------|-------------------|------------------|
| 1 | Boise, ID | 47% |
| 2 | Austin, TX | 39% |
| 3 | Kingston, NY | 38% |
| 4 | Boone, NC | 37% |
| 5 | Kalispell, MT | 35% |
| 6 | Coeur d’Alene, ID | 35% |
| | | |
| 16 | Missoula, MT | 32% |
| | | |
| | United States | 17% |

Source: Analysis of Zillow Home Value Index for metro areas. The ZVHI is intended to describe the value of a typical mid-tier home.

Prices also increased substantially (Table 1). While low interest rates account for some of this increase, Missoula’s housing price appreciation is much higher than typical, ranking 16th out of 911 metro and micro areas. According to Zillow, the cost of a typical mid-tier home in Missoula has increased by almost 33% (from approximately \$350,000 to \$470,000) since February 2020, and the monthly mortgage payment for a typical Missoula home has risen by 18 percent.

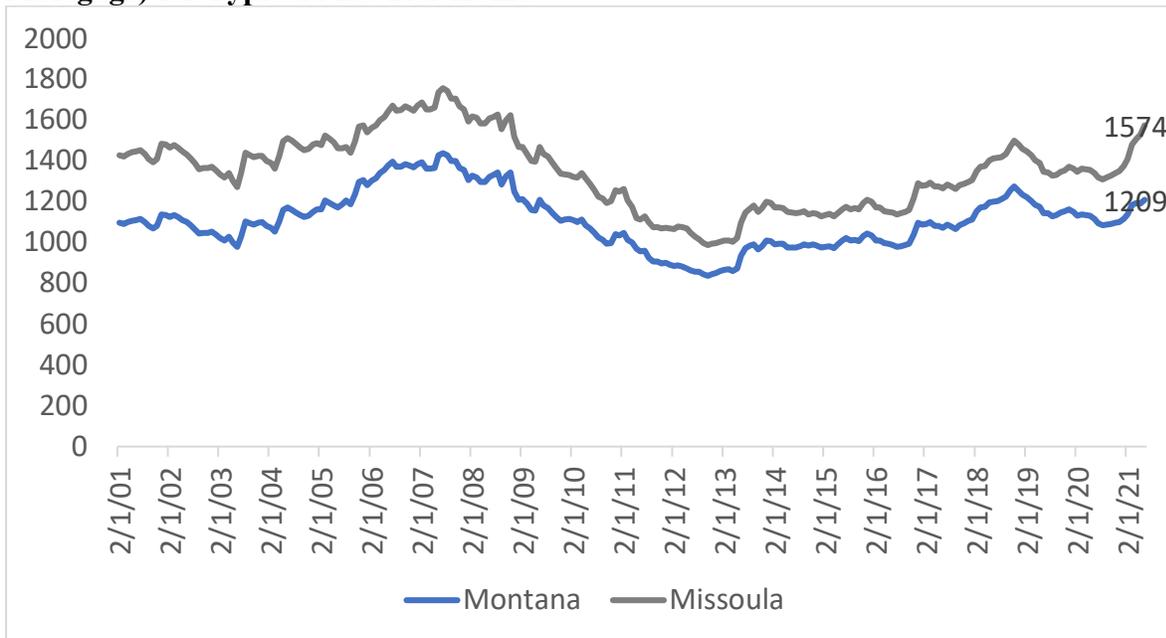
Adjusted for inflation, the mortgage payment for a mid-tier Missoula home has almost returned to pre-Great Recession housing bubble levels (Figure 8). While Missoula home prices

²⁰ See Appendix 10.A.2 for more information.

²¹ Sterling CRE Advisors (2021) <https://www.sterlingcreadvisors.com/missoula-vacancy-rate-falls-again-midyear-2021/>

have been relatively high for a while, Missoula rents tended to be lower relative to other places.²² Unfortunately, consistent data on rent increases across the country are not yet available; however, rising rents threaten to further shrink the set of people who can lower their cost of living by moving to Missoula.

Figure 8: Inflation-Adjusted Mortgage and Interest Payment (80/20 30-Year Fixed Rate Mortgage) for Typical Mid-Tier Home



Source: Analysis of Zillow Home Value Index data and 30-year mortgage interest rate data obtained from FRED.

While the housing shock in Missoula may prove to be a temporary COVID-induced hiccup, Missoula’s workforce could be significantly impacted if the lack of housing and rising costs persists. Missoula’s ability to solve workforce challenges by importing people from elsewhere is threatened when Missoula’s relative attractiveness falls. Rapid changes in the cost of living can threaten Missoula’s ability to grow (unless rising costs are balanced against rising job opportunities or improvements to quality of life).

Many Missoula employers report hiring people who cannot find housing. Others say existing employees are losing their current housing and struggling to find alternatives (and many are choosing to move elsewhere). Missoula’s economic opportunities, cultural and consumer amenities, etc. are all, in part, a function of the set of workers who can afford to live here. Big, persistent shocks to housing prices and availability will ripple through the rest of the economy and change Missoula’s trajectory.

B. Participation

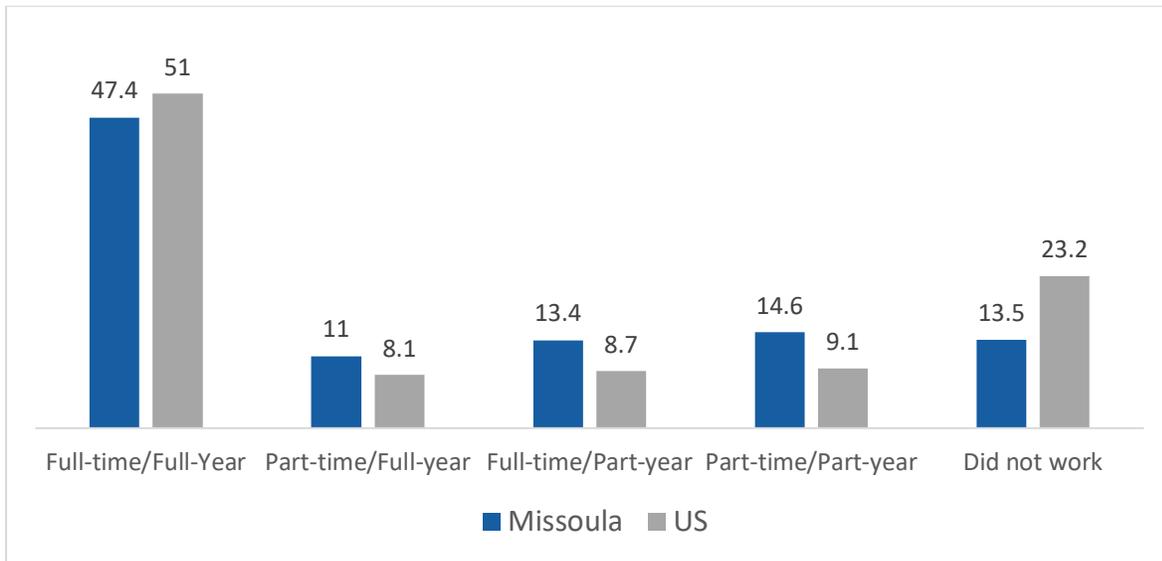
²² Ward, B. (2018). “Poverty with a View.” *Montana Business Quarterly*.

Participation provides a second means of boosting Missoula’s workforce capacity. If more people are willing to work or are willing to work more hours, Missoula’s workforce capacity grows.

Historically, Missoula’s labor force participation rate was high. Between 2015-2019, 70% of Missoulians over age 16 participated in the labor force (85% of those aged 20-64).²³ This placed Missoula in the top 5% of all counties. As such, there was little room to boost Missoula’s workforce capacity by increasing the labor force participation rate. However, as discussed above, COVID has depressed labor force participation. As such, in the short run, Missoula has an opportunity to address some of its workforce challenges by drawing people back into the labor force. Unfortunately, it is unclear precisely why labor force participation remains depressed, so more research is necessary to address this issue.

While Missoulians historically had high participation rates, hours per worker were low. Only 47 percent of Missoulians aged 16-64 worked full-time, full-year (Figure 9). This was four percentage points below the US average. As such, Missoula could boost workforce capacity by increasing the number of people who work full-time.

Figure 9: Percent of people 16-64 working full/part-time and full/part-year



Source: American Community Survey 2019.

Focus groups with employers and workers in the spring of 2021 identified a handful of potential impediments to participation. The most commonly discussed potential barrier was child care. Like Missoula overall, Missoula’s parents have very high labor force participation. Eighty-four percent of Missoula kids under 6 and 88% of Missoula kids aged 6-17 live in a household where all parents work.²⁴ While labor force participation is high, parents (and employers) report significant difficulties accessing childcare. These difficulties affect how many and which hours parents are available to work. A recent survey found that child-care problems caused a majority

²³ American Community Survey (2015-2019).

²⁴ American Community Survey 2019.

of parents to miss time at work and significant minorities of parents to limit their careers by not pursuing training, turning down job offers, or switching to part-time work.²⁵

Health and mental health problems (including addiction) were the second most common barrier to labor force participation discussed. Many people have physical or mental health challenges that place them at the margin of employability. Like all communities, many people in Missoula struggle to find and keep jobs. While challenging, figuring out how to push more people off the employability margin can help Missoula boost its workforce capacity. Recent research suggests that “wrap-around” job support services can help workers at the margins find more stable, higher-wage employment.²⁶

Focus group participants also identified difficulties accessing reliable transportation, lack of awareness of certain types of job opportunities, and search difficulties as potential impediments to Missoulians’ labor force participation.

Finally, in part, Missoula’s economy drives labor force participation. For instance, Missoula’s higher share of part-time or part-year workers likely stems from Missoula’s high share of seasonal employment.²⁷ Similarly, relatively low wages in Missoula may make some people less likely to work.

In sum, while high labor force participation historically boosted Missoula’s workforce capacity, Missoula (like many other places) has struggled to get labor force participation back to pre-COVID levels post-vaccine availability. This is one of the most significant challenges facing Missoula’s workforce in the near term. Unfortunately, it remains unclear what is driving the slow return to the labor force and what, if anything, might be done to boost participation. However, addressing long-term issues like child care and helping move people off the employability margin would likely help increase capacity.

C. Productivity

Productivity equals output per worker or output per hour worked. Productivity is an essential determinant of wages and opportunities. Employers’ ability to pay higher wages or expand employment, in part, depends on productivity.

Worker productivity, in turn, reflects worker abilities, skills, experience, and wisdom. Productivity also reflects how individual skills interact with other resources in the firm (equipment, other workers, and production processes) and the community (infrastructure).

Unfortunately, productivity tends to be low in Missoula (Figure 10). Missoula’s output per person is only 72 percent of the US level. However, this primarily reflects Missoula’s size. Smaller communities tend to have lower output per person, and Missoula’s output is very typical

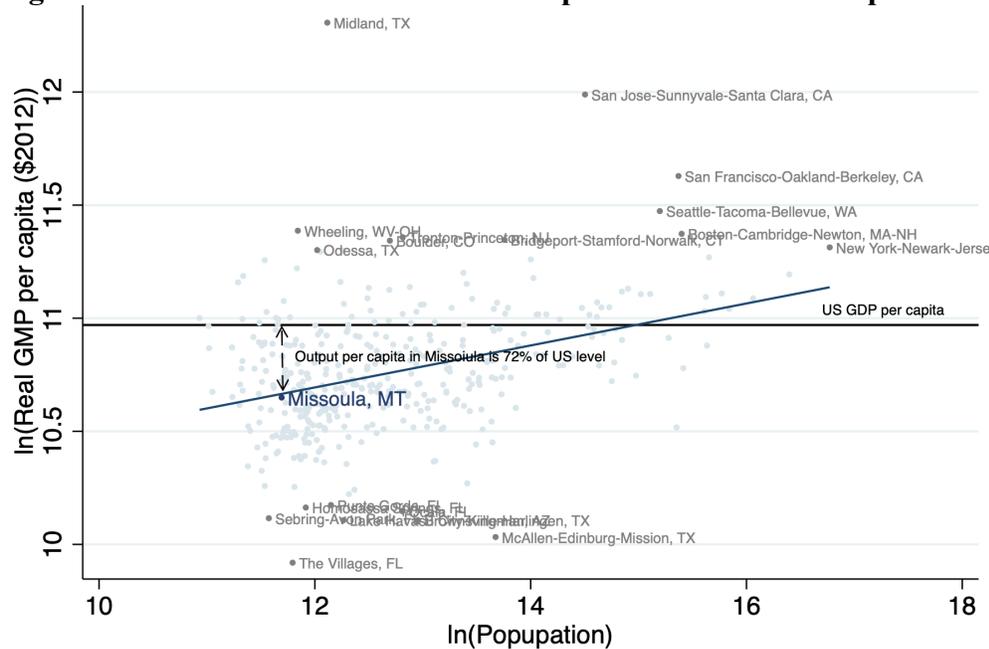
²⁵ BBER (2020) Lost Possibilities: The Impacts of Inadequate child Care on Montana’s families, employers, and economy.

²⁶ Katz, L. F., Roth, J., Hendra, R., & Schaberg, K. (2020). *Why Do Sectoral Employment Programs Work? Lessons from WorkAdvance* (No. w28248). National Bureau of Economic Research.

²⁷ See Appendix 8 for additional information.

for communities its size. Smaller communities offer fewer opportunities for workers to generate lots of output by becoming highly specialized. Employment in smaller communities is often more heavily concentrated in some lower-wage sectors (like retail and accommodation and food service) and more lightly concentrated in some higher-wage sectors (like management of companies and finance and insurance). Productivity in smaller communities also sometimes lags because demand in some industries is lower, so workers are under-utilized.

Figure 10: Correlation Between Real Output Per Person and Population

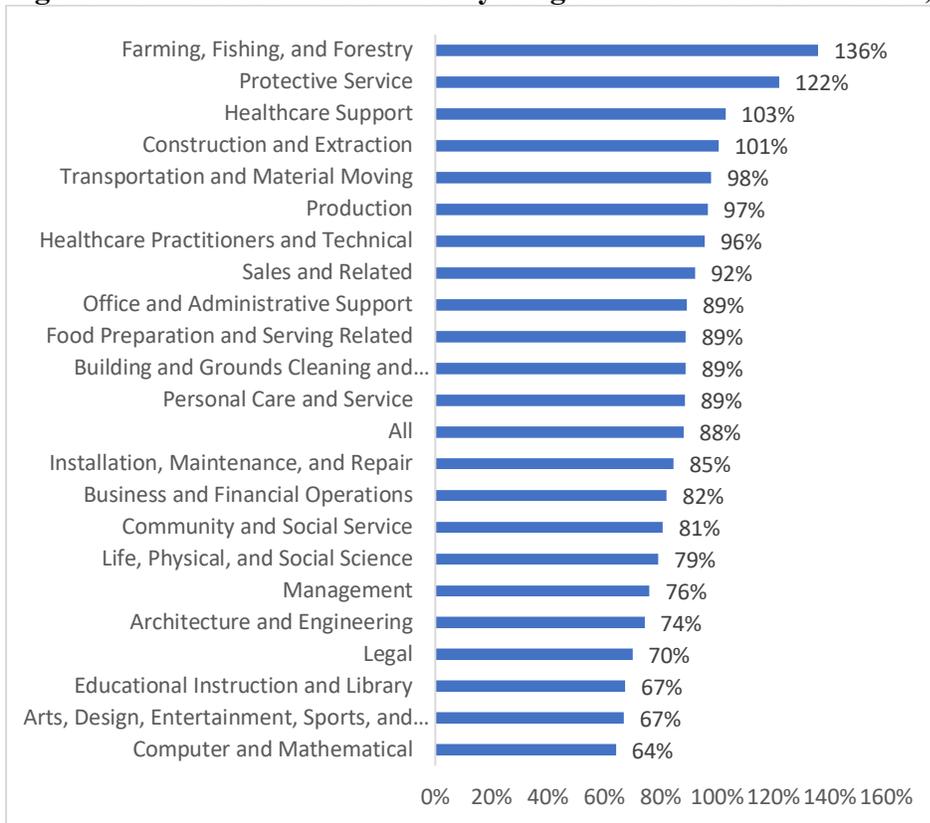


Source: Analysis of Bureau of Economic Analysis data

Low productivity contributes to lower wages in Missoula. Pre-COVID, Missoula’s average hourly wage was only 81 percent of the US average (and Missoula’s median hourly wage was 88 percent of the US median). Missoula’s hourly wages are low for most major occupation groups, although the disparity varies widely (Figure 11). Wages are particularly low in occupations that tend to require more education like computer and mathematical occupations, legal occupations, and management. Consistent with this pattern, median earnings for people with bachelor’s degrees are only 67 percent of the US median.²⁸

²⁸ American Community Survey 2019.

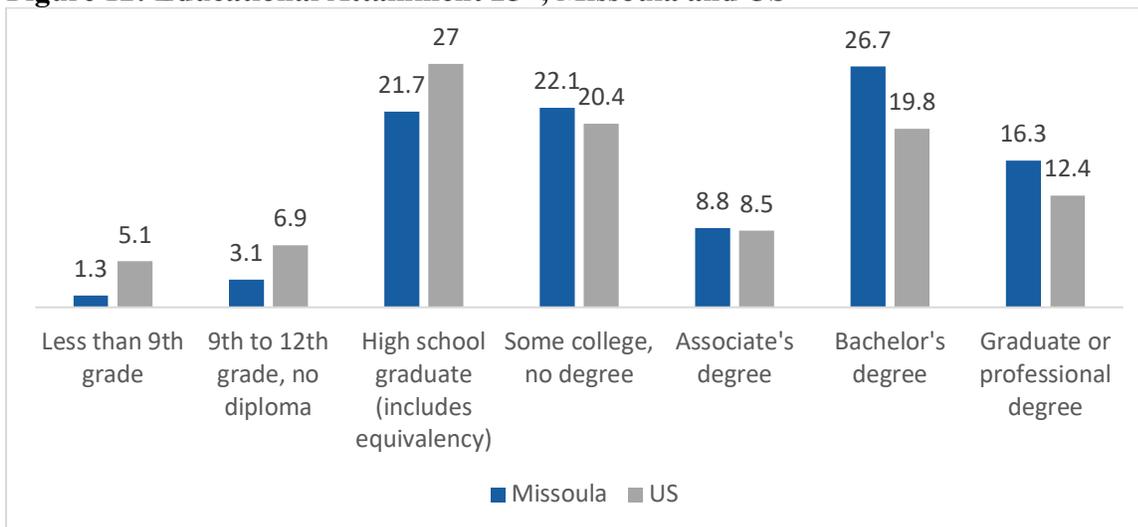
Figure 11: Missoula Median Hourly Wage as Percent of US Median, 2019



Source: Analysis of BLS Occupation Employment and Wage Statistics data

Missoula’s low wages do not imply that Missoula workers are less capable or less skilled. Missoula’s workers have substantial capacity. Forty-three percent of Missoula’s population over age 25 has at least a Bachelor’s Degree (Figure 12). Missoula ranks 131st out of 3220 counties with data.

Figure 12: Educational Attainment 25+, Missoula and US



Source: American Community Survey 2019

Focus group participants were generally satisfied with the quality of their applicants and the workers they hired. However, they noted a few gaps. In particular, some noted challenges reliably filling some low-wage positions, while others noted challenges filling positions that require a significant amount of specialized experience that is hard to acquire in Missoula (e.g., mid-to-late-career management).

Focus group participants were very satisfied with their ability to hire workers from the education and training programs in Missoula; however, some wished that particular programs had more capacity or more enrollment while hoping to add specific programs. Overall, there was no consistent indication that Missoula's workforce lacked particular skills or the ability to develop them.

The more significant challenge for productivity in Missoula is utilizing its capacity. There are two parts to this challenge. First, there is the "demand" challenge. Missoula suffers from a common college-town problem.²⁹ People come to Missoula for school; they grow to love the community and want to stay. As such, Missoula has a deep pool of talent, but the size of the community (and its isolation from larger markets) limits demand for those skills. To address this limitation, Missoula can strive to boost the productivity of existing firms or work to shift the economy's composition by growing high productivity industries more than low productivity ones.

Second, there is the matching challenge. Firms in Missoula do a lot of hiring. In 2019, Missoula firms hired over 48,000 workers.³⁰ With this much hiring going on, it is easy to get it wrong. It is likely that some workers would be better off in different firms and that some firms would be better off with different workers.

While job matching services like Indeed have made it easier for workers and employers to find each other, impediments to matching still exist on both sides. On the worker side, some qualified workers could be better off in different jobs; however, they fail to find their best match for a variety of reasons, e.g.:

- Information problems – People are unaware of the opportunity;
- Evaluation problem – Qualified workers (or firms) incorrectly decide they are not right for the job;
- Risk -- Risk aversion stops qualified workers from leaping to a potentially better job.

Focus group participants felt that each of these factors may contribute. However, they are particularly concerned that young people do not have good information about the range of options available or sufficient ability to evaluate what job opportunities might provide the best fit.

On the firm side, there is an analogous set of impediments that apply. In addition, however, there are other potential barriers related to their willingness and ability to train and their ability to compete against other employers on wages, benefits, and growth opportunities.

²⁹ Ward, B. (2016) "Curse of the College Town." *Montana Business Quarterly*

³⁰ See Appendix 8.

In sum, productivity in Missoula is a mixed bag. It has a large pool of talented workers and, because it is a college town, has more capacity to develop skills than is common in other communities. However, Missoula is still small and isolated. As such, it often struggles to utilize its available capacity fully.

V. Conclusions

In sum, the Missoula workforce is relatively strong. Pre-COVID, Missoula’s workforce supported relatively fast growth, and it was adapting to a changing economy. However, given the COVID shock and given the need to continue to improve the strength of Missoula’s workforce, there are several areas that policy makers should continue to track and address, if possible:

- (1) Missoula (like many other places) continues to struggle to return employment to pre-COVID levels. The fact that labor force participation has been slow to recover post-vaccination and post-school year is troubling. It may simply take a few more months for the labor force to return to “normal.” However, if labor force participation remains depressed in the fall, policymakers should work to understand what is going on and what, if anything, might boost participation.³¹
- (2) Missoula also continues to struggle with an acute housing shortage and the accompanying price shock. Missoula needs to ensure that there is sufficient housing available to support normal labor market (and housing) turnover. It also needs to consider whether it wants housing available at certain prices (so that housing is affordable to certain types of workers). To the extent that communities can influence their housing prices, when communities choose to let prices rise, they are, in effect, deciding that businesses or jobs that cannot pay wages high enough to afford housing are not desired in the community.
- (3) In addition to addressing housing affordability, there are two additional areas that policy makers can track and address to ensure that Missoula remains an attractive place. First, as discussed further below, continuing to improve job opportunities and wages will also help Missoula’s attractiveness—particularly for trailing spouses. Second, Missoula must always be vigilant to ensure that its quality of life remains attractive.
- (4) To boost labor force participation, policymakers should continue efforts already underway to address the cost, quality, and accessibility of child care. They must also enhance and improve efforts to help people at the margins of employability. This likely includes continuing to improve access to health care, mental health care, and substance abuse treatment. It also likely includes investing in sectoral training programs and wraparound services that have recently been demonstrated to significantly improve outcomes for workers at the margins.³²

³¹ It is important to note that some people may have changed their preference for work. If people simply do not want to work, it may be difficult to them to return (and it is unclear if policy makers should even want to try).

³² See Katz et al (2021)

- (5) The University of Montana, Missoula College, and Missoula's other education and training institutions provide Missoula an advantage in attracting and creating skilled workers. However, it is a never-ending challenge to ensure that those programs continue to provide this advantage. These programs must correctly calibrate their capacity to match expected workforce needs, and they must ensure sufficient enrollment in their programs to satisfy workforce demands.
- (6) Pre-COVID, Missoula was successfully increasing productivity and wages, in part by adding employment in several higher wage sectors. Missoula must re-establish this trend in order to advance job opportunities in Missoula.
- (7) Finally, Missoula may want to better understand potential impediments to efficient job matching. There is particular concern that potential workers, particularly students, remain unaware of potential opportunities. However, it is also worth understanding what, if anything, Missoula firms may be able to do to more effectively boost awareness and better compete for workers.

Appendix

This appendix collects additional data and analyses that were prepared for this report. For the most part, these data and analyses complement those described in the main report; however, there are occasional topics that were not explored in detail in the main text.

We have organized these data and analyses around 11 main questions and present each separately.

1. What jobs will need to be filled?

In 2019, according to Longitudinal Household-Employer Dynamics (LEHD) data, Missoula County employers made 47,800 hires. That's a lot.

There is a lot of churn in a local labor market. Growing firms need to hire workers to fill newly created positions. Existing firms need to hire workers to replace people who leave for other jobs, who are terminated, or who leave the workforce (due to retirement, family requirements, health problems, etc.). Seasonal firms need to hire to accommodate surges in demand.

The simplest answer to the question, “what jobs will need to be filled?” is “what jobs have we been filling?” That is, hiring in the near future is likely to resemble the recent past. However, our immediate future may differ from our recent past for a few reasons.

First, Missoula employers still need to hire workers to replace workers lost due to COVID-19 (and perhaps handle a surge in post-COVID demand). Second, it is possible that COVID-19 will prompt significant shifts in the goods and services people want, and how firms provide them. Such changes may require the economy to shift employment among industries and occupations. Third, it is also possible that the economy will shift for reasons unrelated to COVID. Economic forces are always changing. The types of jobs Missoula added in its most recent expansion differed from those in the expansion that preceded the Great Recession. Forces like globalization, automation, and other forms of technological change will continue to prompt economic change.

Of course, the changes that occur in Missoula are not entirely driven by large economic forces. Demand for Missoula's workers is endogenous to local supply. The feasibility of growth in a particular industry depends, in part, on whether the required workers exist locally (and how hard it is to create or import them).

2. How much market work was done in Missoula pre-COVID?

To measure the amount of market work done, we use total earnings data from the Bureau of Economic Analysis.³³ Given that the same amount of output can be generated by different amounts of workers and hours, earnings data provides a broad, consistent unit of measurement. These data include total compensation for wage and salary workers and total earnings for proprietors. Earnings for wage and salary workers includes wages and salaries, employer contributions for pensions and insurance, and employer contributions for government social insurance.

| Earnings | 2019 (000s) | % of total earnings |
|---|--------------------|----------------------------|
| Total earnings for Missoula County workers | \$4,189,807 | 100% |
| Total compensation for wage and salary workers | \$3,659,062 | 87% |
| Wages and salaries | \$2,936,114 | 70% |
| Employer contributions for employee pension and insurance | \$464,485 | 11% |
| Employer contributions for government social insurance | \$258,463 | 6% |
| Proprietor income | \$530,745 | 13% |
| Employment | | % of total emp. |
| Total full- and part-time work in Missoula County | 87,572 | |
| Annual average full- and part-time wage and salary employment | 66,674 | 76% |
| Annual average proprietor employment | 20,898 | 24% |

Source: Bureau of Economic Analysis

³³ It is important to remember that a significant portion of the total work done in Missoula is not done in a market and is not captured in the data examined in this report.

3. How has the amount of market work done in Missoula changed over time?

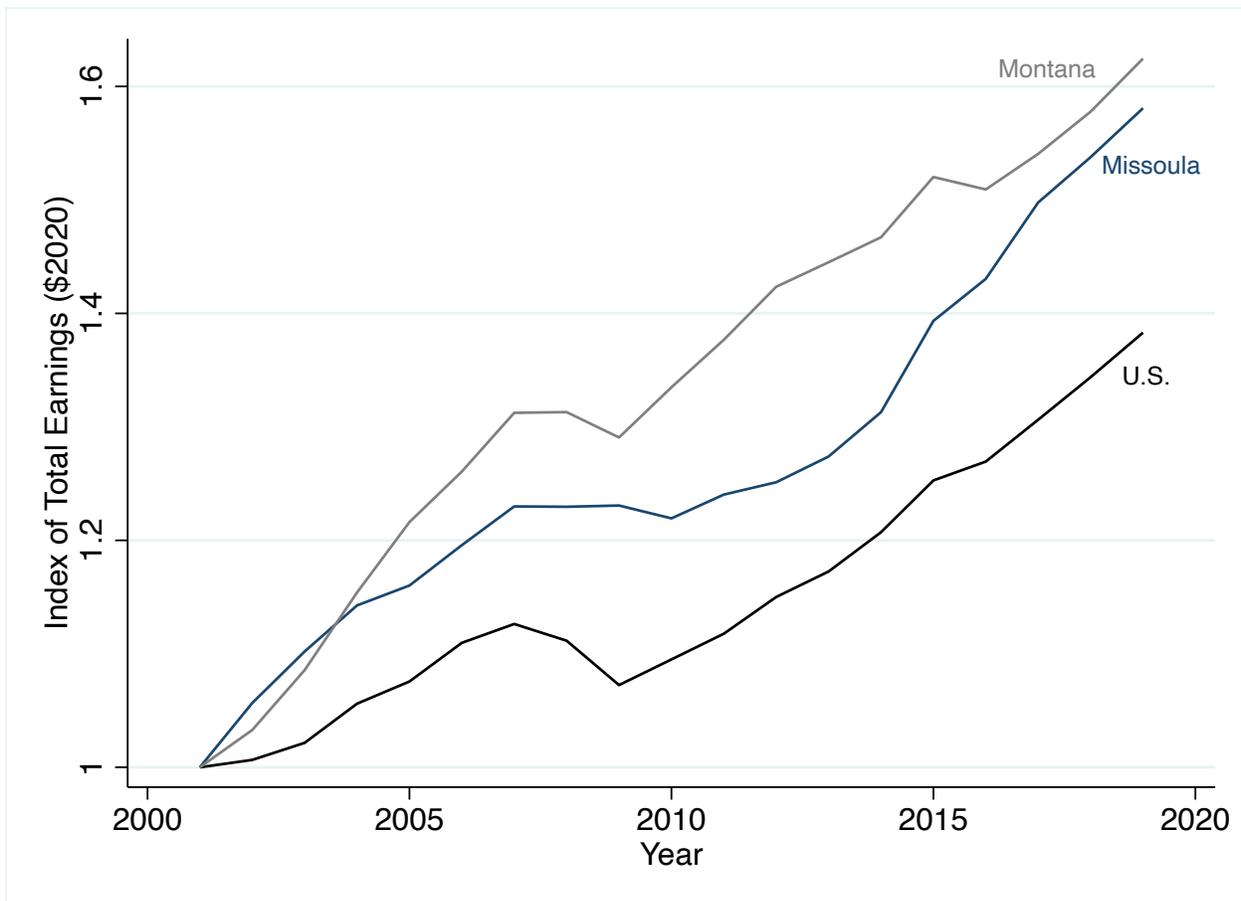
Total earnings in Missoula County (adjusted for inflation) grew from \$2.7 billion in 2001 to \$4.2 billion in 2019.

This growth reflects both increases in the number of workers and increases in inflation-adjusted earnings per worker (which may reflect either an increase in hours per worker or an increase in output per hour - aka productivity).

Total employment increased by 19,276 workers, and total inflation-adjusted earnings per worker increased by \$9,136.

Since 2001, Missoula's inflation-adjusted earnings increased by 58 percent. This is much faster than the US growth (38 percent), but slightly slower than Montana's growth (62 percent). Missoula's growth over this period ranks in the top 16 percent of all counties.

Missoula's total earnings growth was particularly fast between 2014-2019. Inflation adjusted earnings increased by 20%. US growth was 15 percent over this period, and Montana's was 11 percent. Missoula's growth over this period ranked in the top 12 percent of all counties.

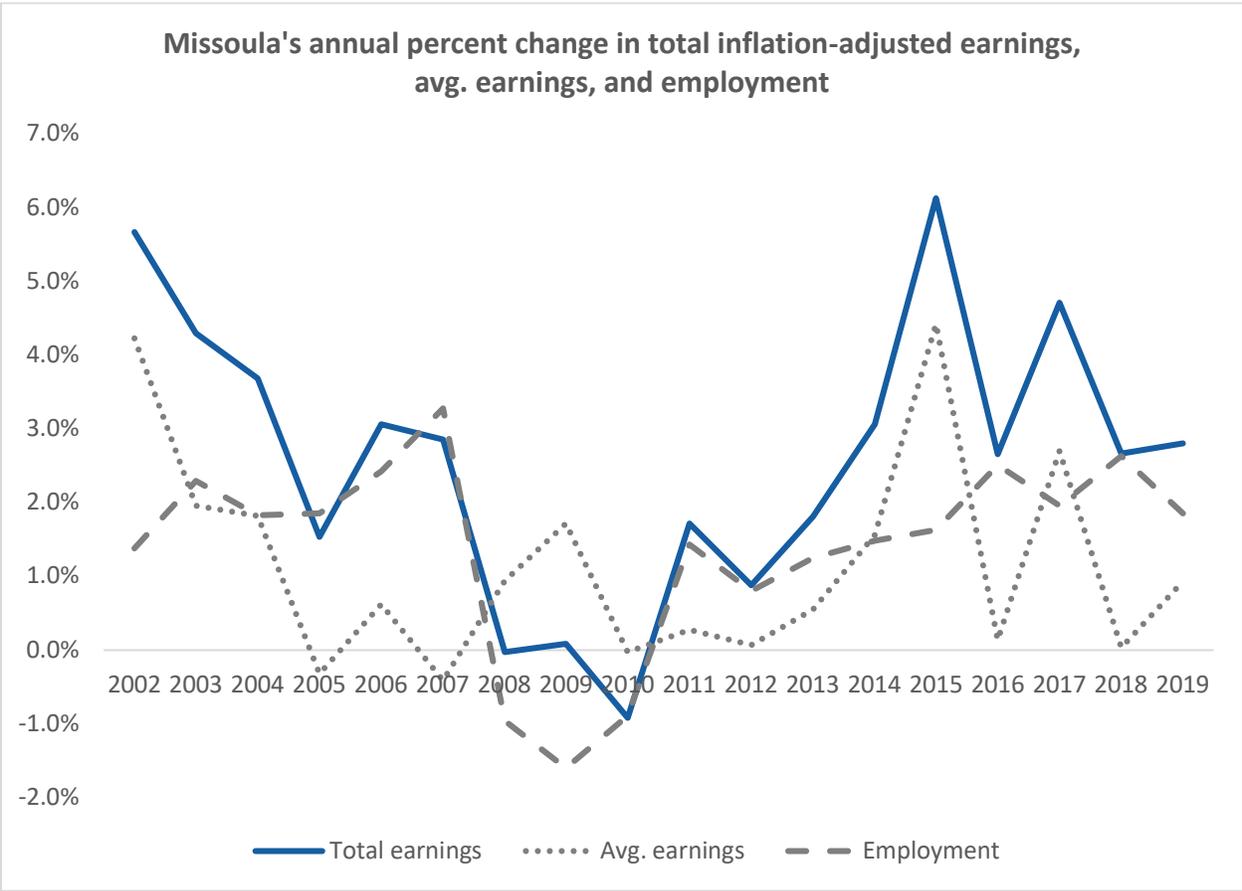


Source: ABMJ analysis of BEA data, earnings adjusted for inflation using the PCE Index.

Since 2001, total (inflation-adjusted) earnings grew by an average of 2.6 percent per year. However, earnings grew by an average 3.7 percent per year between 2014-2019. This is roughly equal to Missoula’s growth rates prior to the Great Recession.

While the source of growth each year changes, on average, inflation-adjusted earnings growth is roughly evenly split between growth in employment and growth in earnings per worker. Between 2014 and 2019, employment grew by an average of 2 percent per year (roughly 1200 jobs) and inflation-adjusted earnings per worker grew by an average of 1.6 percent per year.

So, for earnings to grow at the rates observed in the recent past, Missoula likely needs to increase both the number of workers and the output of each worker.



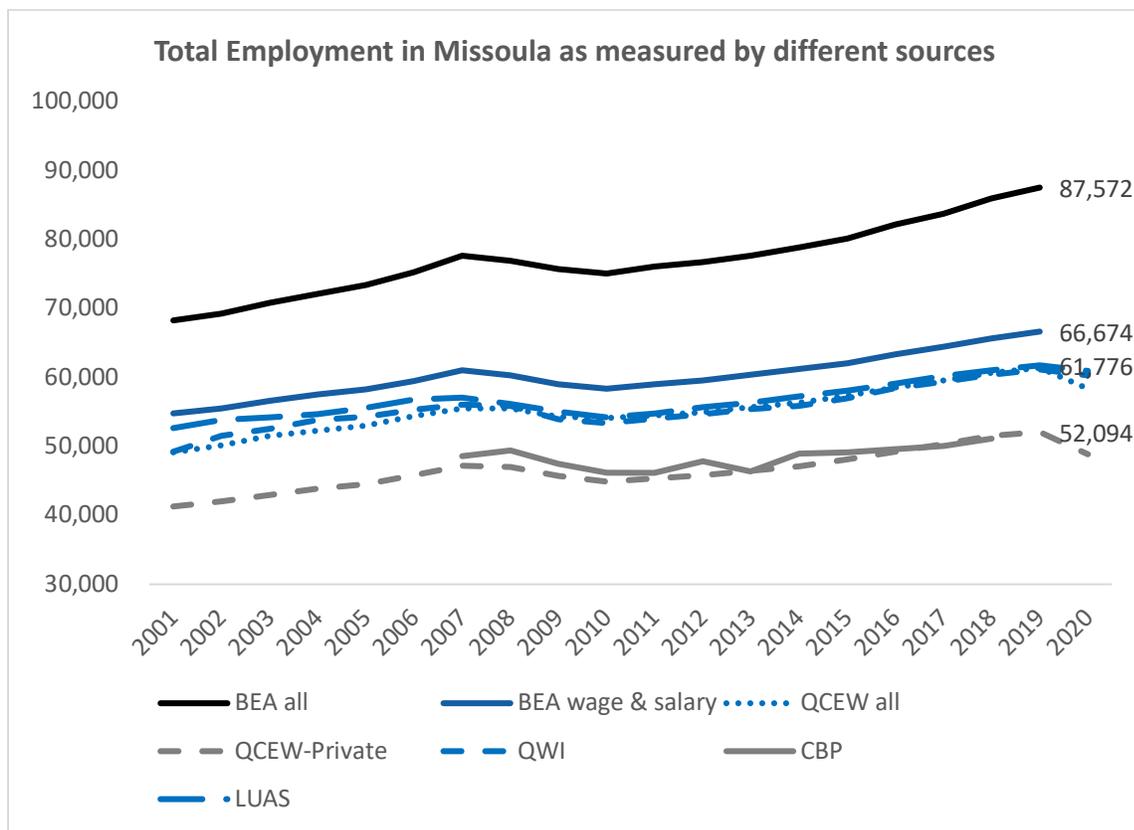
Source: ABMJ analysis of BEA data.

4. How many jobs?

Jobs data come in many flavors. The three main sources are the Bureau of Economic Analysis, the Bureau of Labor Statistics (Quarterly Census of Employment and Wages (QCEW) and Local Area Unemployment Statistics (LAUS) reports), and the Census Bureau (Quarterly Workforce Indicators (QWI) and County Business Patterns (CBP) reports). The different sources include different workers, and thus show different employment levels and trends.

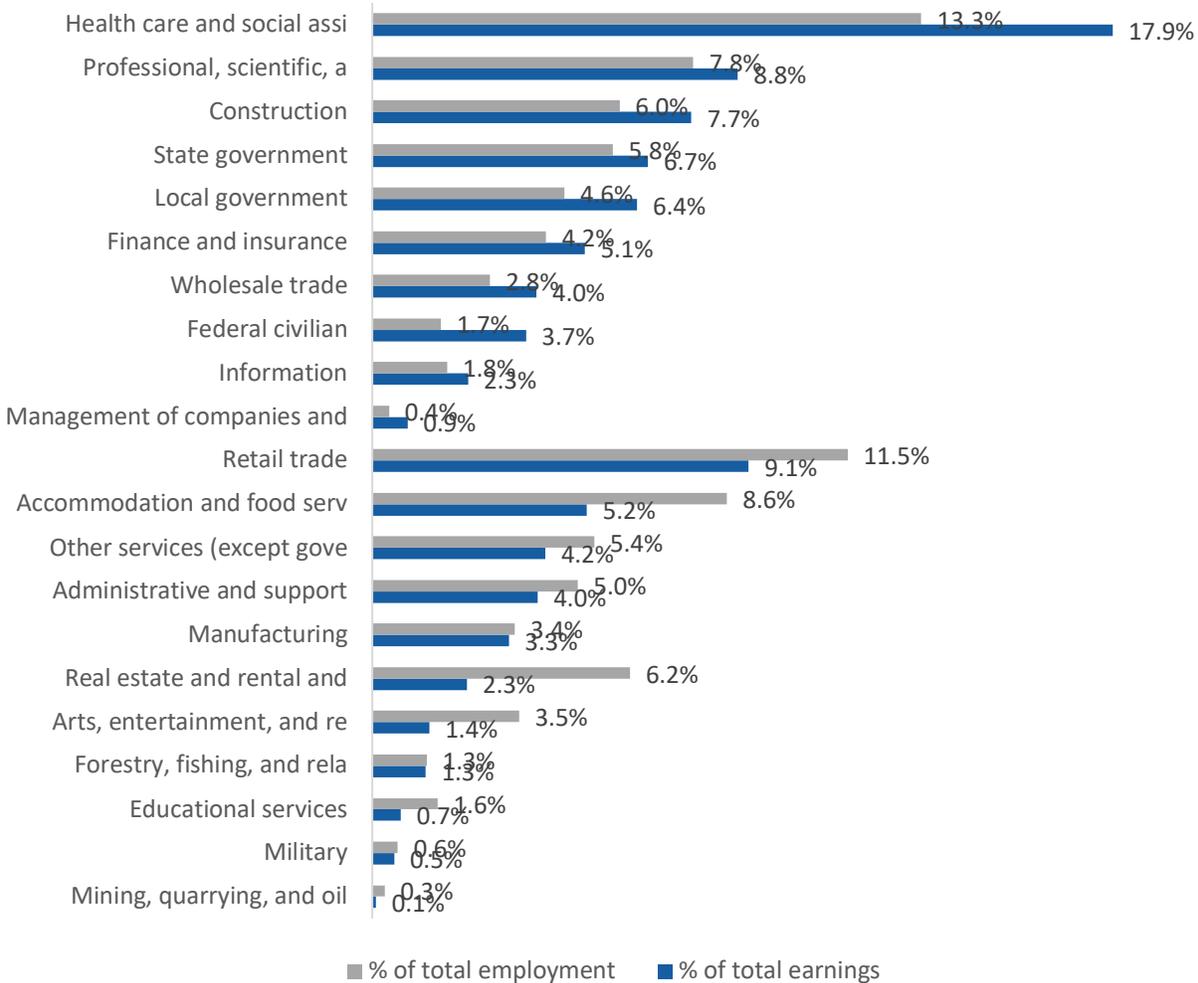
The Bureau of Economic Analysis (BEA) data are the broadest. They include proprietor employment and employees not covered by unemployment insurance (UI data provide the main source for the QCEW, LAUS, and QWI). County Business Patterns are the narrowest. They only include data on private sector workers.

While the different measures tend to move together, there are differences than should be kept in mind when looking at employment data; e.g., in Missoula, proprietor employment is large and has grown more than wage and salary employment. UI-based measures also miss a significant portion (approx. 7.5 percent) of Missoula’s wages and salary workers.



5. What types of work?

Health care/social assistance and retail trade are the two largest industries regardless of whether one ranks based on earnings or employment. However, after that, rankings depend on whether you look at earnings or employment. For example, professional, scientific, and technical services is the third largest industry as measured by earnings but fourth largest as measured by employment while accommodation and food service is the third largest as measured by employment, but the seventh largest as measured by earnings.

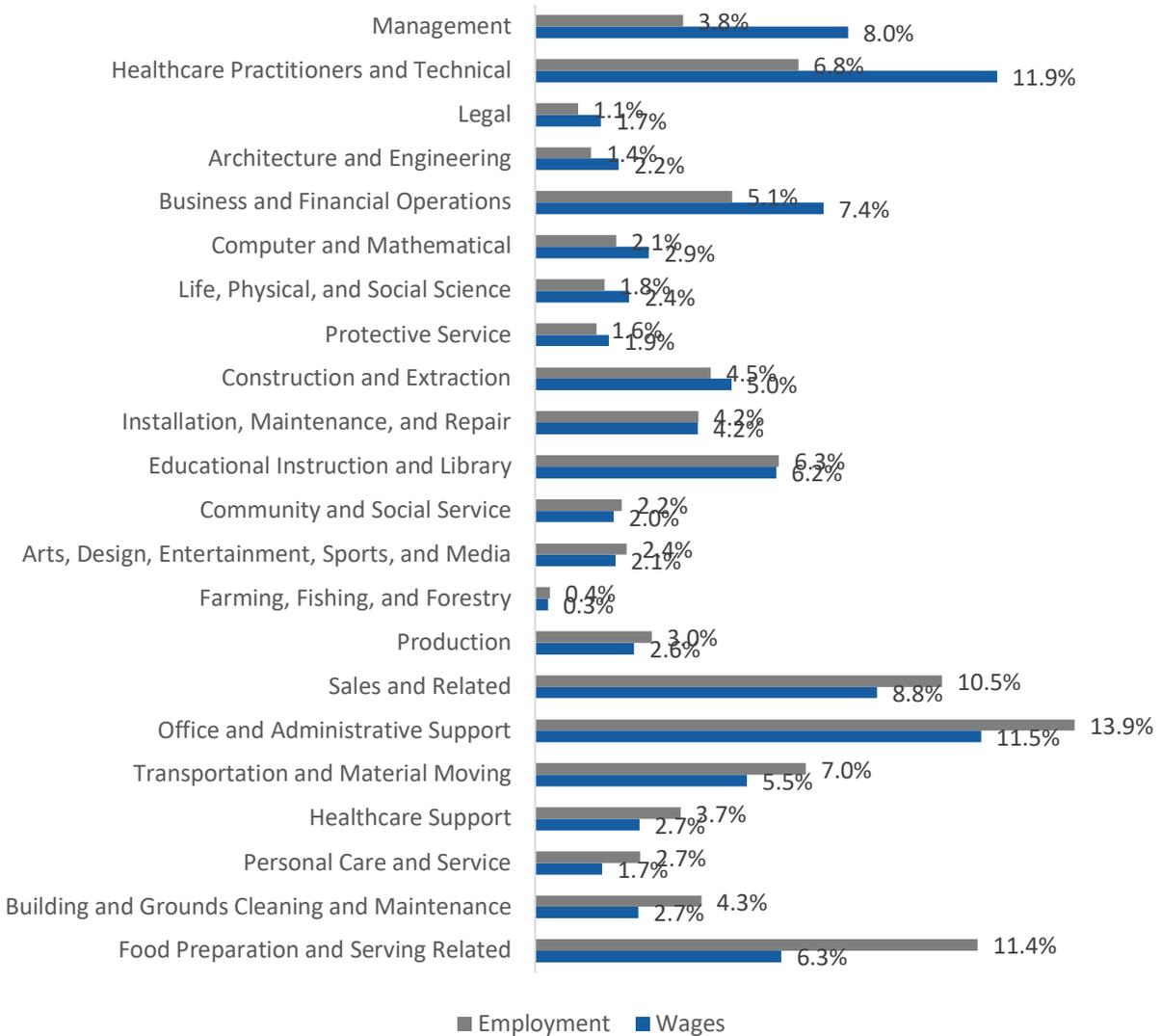


Source: ABMJ analysis of BEA data for all workers.

This figure below looks at the allocation of total employment and total wages (average annual wage x jobs) by major occupation category in 2019. The figure ranks occupations by average wages, so the occupation with the highest wage is on the top.

As measured by employment, three relatively low wage occupations are Missoula's largest (office and admin support, food prep and serving, and sales and related).

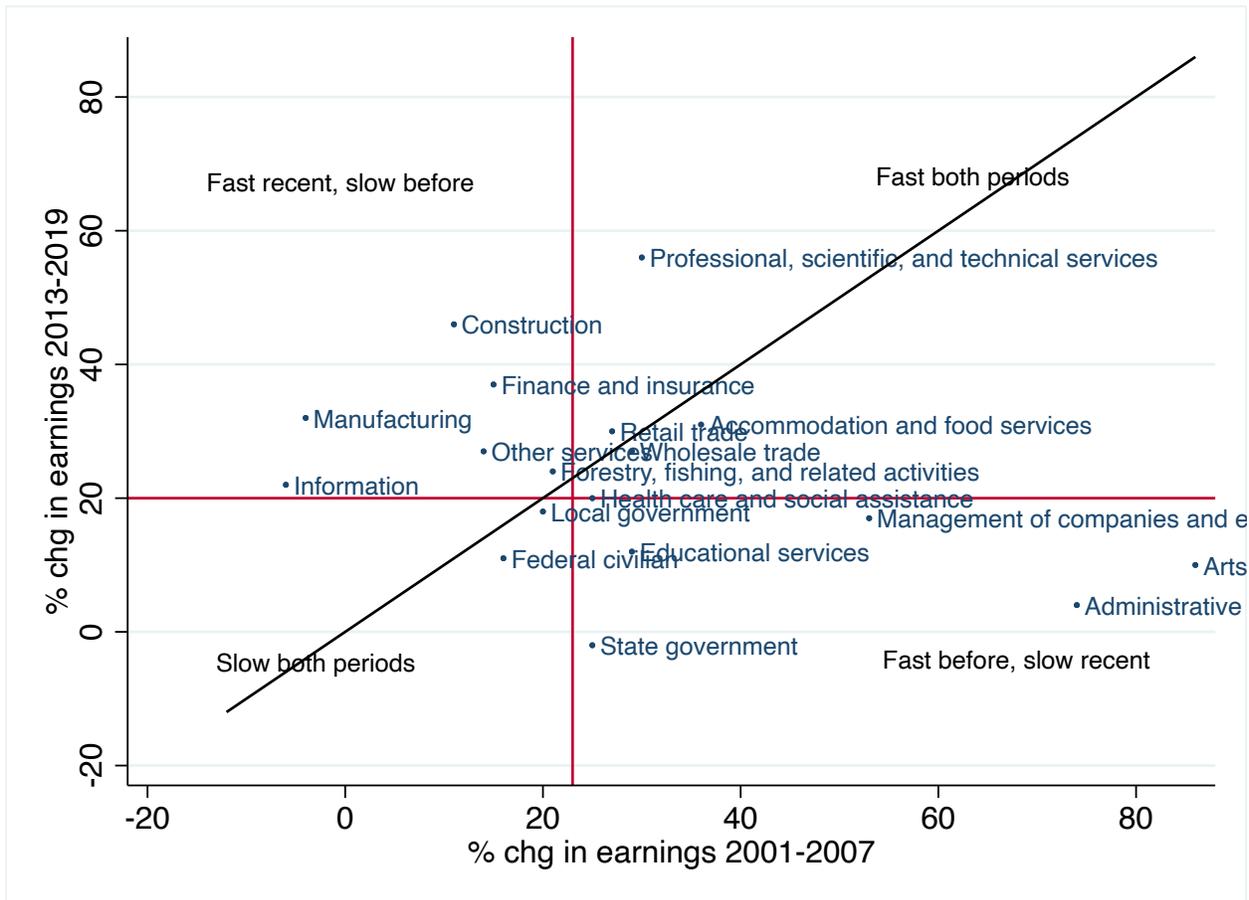
As measured by total wages, healthcare practitioners, office and admin support, and sales and retail are Missoula’s largest occupations.

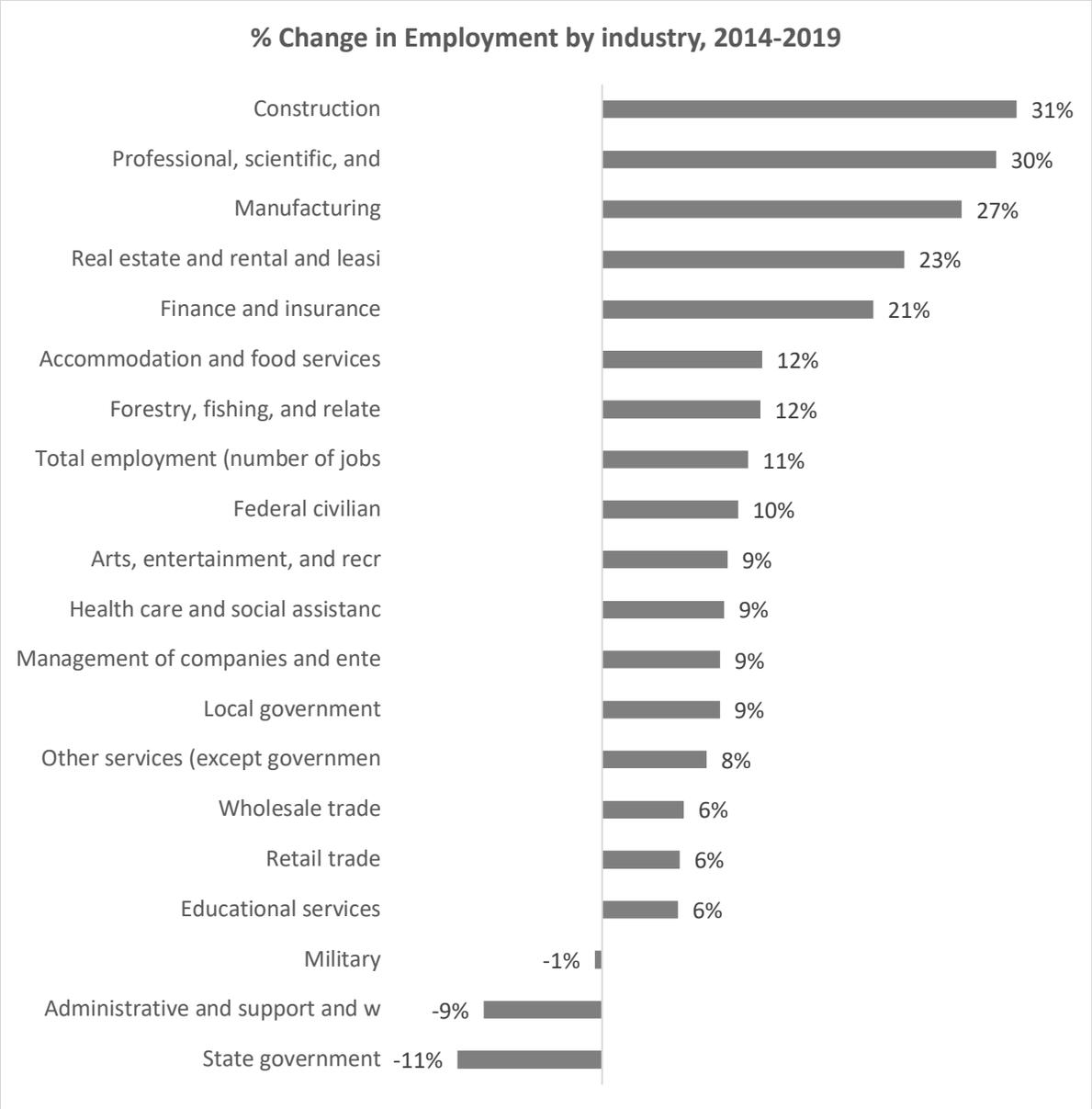


Source: ABMJ analysis of BLS Occupation Employment Statistics data.

6. How have the types of work done in Missoula changed?

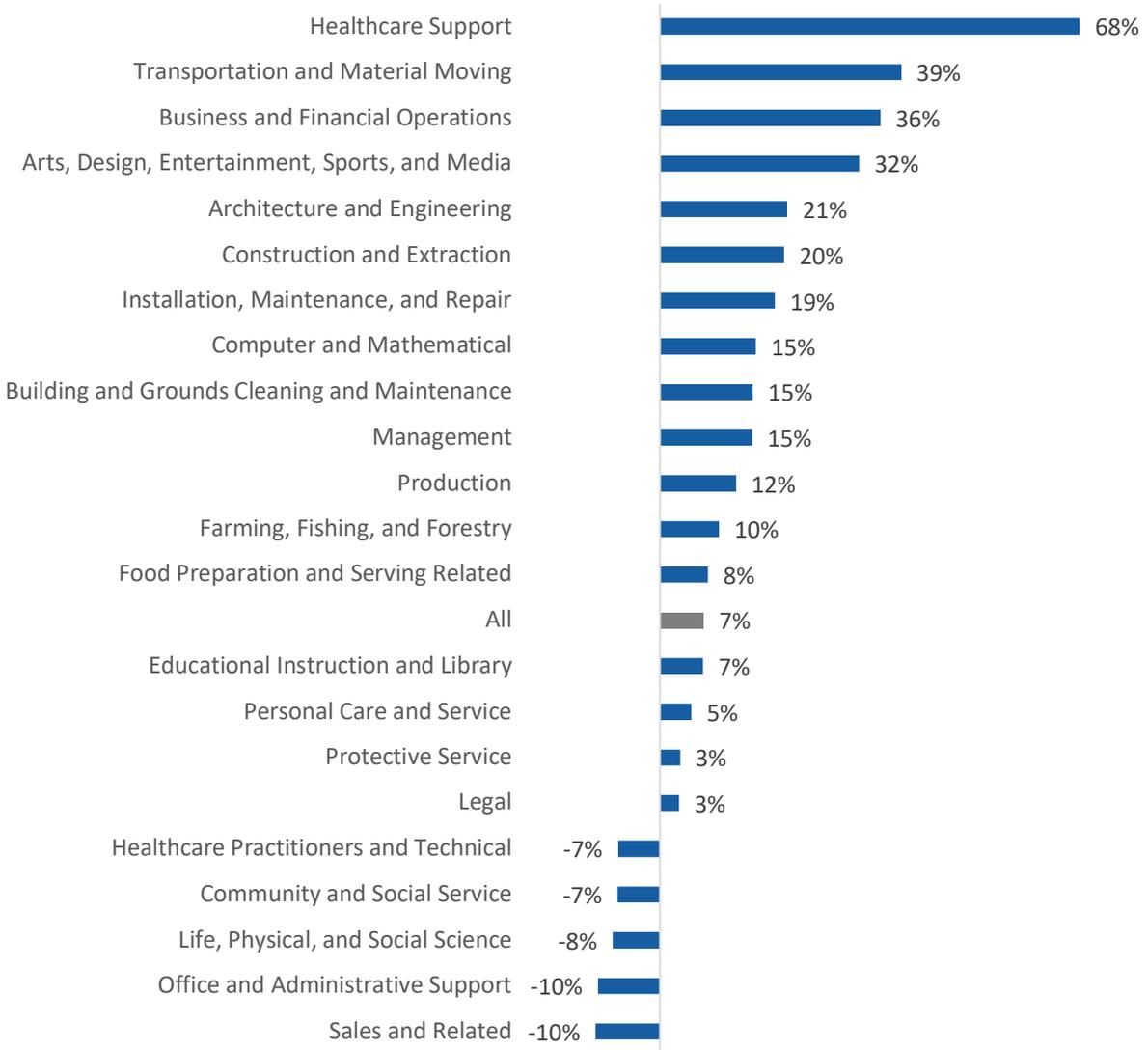
Growth rates vary over time, so the description of change over time depends on the period examined. To illustrate, the figure plots industry growth rates over two six-year expansionary periods. In the pre-Great Recession expansion (horizontal axis), arts/entertainment/recreation, administrative support, and management of companies were the fastest growing industries. However, in the most recent period (vertical axis), all three of these industries grew slower than Missoula overall (red line). In contrast, in the most recent period, professional services, construction, and finance/insurance have grown the fastest. Two of these three grew slower than Missoula overall in the earlier expansion. The figures on the next page show recent growth by industry and occupation.





Source: ABMJ analysis of BEA data

% Change in Employment by Occupation, 2014-2019



Source: ABMJ analysis of BLS OES data.

7. How is Missoula different from the US?

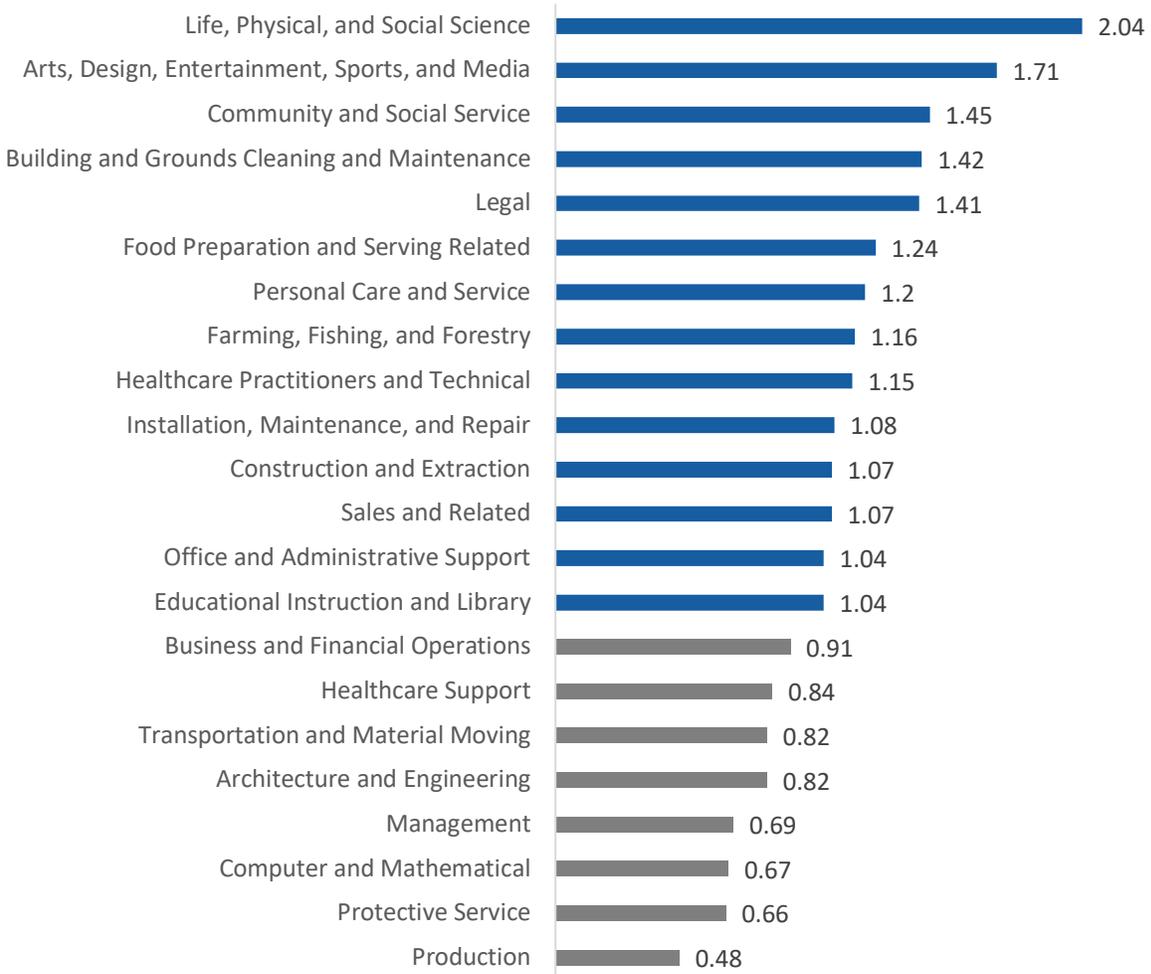
We use a location quotient—which provides an answer to the question, “is the share of this industry/occupation in Missoula higher or lower than the US share? —to assess how Missoula’s economy is different. Missoula has disproportionate concentrations in forestry/fishing, state government (which in these data includes the university), health care, retail/food/accommodation, federal government, construction, and arts/entertainment/rec.



Source: ABMJ analysis of BEA data

At the occupational level, Missoula has disproportionately large concentrations of scientists, arts/design/entertainment, community and social service, buildings and grounds cleaning, legal, and food prep and service occupations, along with smaller disproportionate concentrations in several other occupations.

Location Quotient for Major Occupations, 2019



Source: ABMJ analysis of BLS OES data.

8. How much hiring takes place?

The discussion above describes the level of work and the change in work over time; however, there is lots of churn. The same people do not hold the same job year-after-year-after year. Each year, Missoula firms need to hire lots of workers for lots of reasons. Some employers are growing and need to hire workers to fill new jobs. Some employers need to fill vacancies created by workers who leave for other jobs, leave the workforce, or who have been terminated. Some employers make large seasonal hires to manage seasonal demand surges. Altogether in 2019, Missoula employers hired 47,800 workers, according to Census Bureau estimates based on workers covered by unemployment insurance. Hiring levels and rates vary widely across industries, as shown in the figure below.

| Avg. hires per quarter by industry, 2015-2019. | Average # Hires per Qtr. | Rate (Avg. hires/Avg Emp.) |
|--|--------------------------|----------------------------|
| Arts, Entertainment, and Recreation | 517 | 0.34 |
| Accommodation and Food Services | 2339 | 0.34 |
| Administrative and Support and Waste Management and Remediation Services | 1033 | 0.30 |
| Construction | 860 | 0.26 |
| Agriculture, Forestry, Fishing and Hunting | 151 | 0.25 |
| Retail Trade | 1685 | 0.20 |
| Educational Services | 1137 | 0.20 |
| Other Services (except Public Administration) | 523 | 0.18 |
| Real Estate and Rental and Leasing | 165 | 0.18 |
| Transportation and Warehousing | 290 | 0.17 |
| Manufacturing | 361 | 0.16 |
| Professional, Scientific, and Technical Services | 484 | 0.15 |
| Information | 165 | 0.14 |
| Health Care and Social Assistance | 1332 | 0.13 |
| Public Administration | 269 | 0.12 |
| Mining, Quarrying, and Oil and Gas Extraction | 5 | 0.12 |
| Wholesale Trade | 241 | 0.11 |
| Management of Companies and Enterprises | 34 | 0.11 |
| Finance and Insurance | 145 | 0.07 |
| Utilities | 14 | 0.02 |

Source: Analysis of Census Bureau LEHD data (2015-2019).

Hiring rates also vary by firm size and age. Young firms hire at faster rates than older firms. However, the vast majority (70 percent) of hiring occurs at older firms. Small firms also

hire at faster rates than larger firms. However, a majority (50 percent) of hiring occur at firms with more than 50 employees.

| Firm Age | Average # of hires per quarter | Rate (# hires/employees) |
|-------------------|---------------------------------------|---------------------------------|
| 0-1 Year | 663 | 0.42 |
| 2-3 Years | 479 | 0.29 |
| 4-5 Years | 434 | 0.28 |
| 6-10 Years | 903 | 0.25 |
| 11+ Years | 5861 | 0.18 |
| Firm Size | | |
| 0-19 Employees | 2885 | 0.25 |
| 20-49 Employees | 1203 | 0.21 |
| 50-249 Employees | 1735 | 0.21 |
| 250-499 Employees | 431 | 0.19 |
| 500+ Employees | 2085 | 0.16 |

Source: Analysis of Census Bureau LEHD data.

These data also allow us to group hired workers into a variety of different categories. These are:

- New Hires vs. Recalls -- Those who have not worked for this employer recently vs. those who have. In 2019, about 15 percent of Missoula’s hires were recalls.
- Stable vs. Unstable -- Some newly hired people do not last long, either because their job is temporary or they do not work out. In 2019, only 70 percent of people hired in one quarter were employed by that employer in the next quarter, and only 45 percent of hires led to a stable job (i.e., jobs that last for at least one full quarter as evidenced by the worker showing up as employed by the same employer for at least part of three consecutive quarters).
- Created jobs vs. Replacements -- As total employment at a firm grows, the quarter-over-quarter increase in employment is classified as job creation. Often, the number of hires exceeds job creation quarter-over-quarter. The number of hires in excess of job creation are assumed to reflect replacement hiring. In 2019, 42 percent of Missoula hires were replacement hires.

Industries differ in the types of hires they make. The table presents the share of all hires that are (a) recalls, (b) lead to a stable job (three consecutive quarters with wages), or (c) replacement hires. It also includes a measure of seasonality (maximum quarterly hiring rate divided by minimum). Shaded cells in the table below are industries in Missoula with above average recalls or seasonality, or below average hires to stable employment or replacement hires. There is a clear set of high seasonality/high recall/low replacement/low stability industries, and a set of industries that are the opposite. This means these industries seek different types of workers and different times, and Missoula’s workforce must satisfy these differing needs.

| | Recalls | Stable | Replacement | Seasonality |
|---|----------------|---------------|--------------------|--------------------|
| Educational Services | 37% | 33% | 34% | 2.20 |
| Agriculture, Forestry, Fishing and Hunting | 30% | 34% | 18% | 2.92 |
| Arts, Entertainment, and Recreation | 28% | 36% | 28% | 1.83 |
| Construction | 21% | 40% | 25% | 2.20 |
| Public Administration | 31% | 45% | 37% | 3.27 |
| Administrative and Support and Waste Management and Remediation Services | 12% | 35% | 40% | 1.52 |
| Accommodation and Food Services | 9% | 39% | 45% | 1.84 |
| Real Estate and Rental and Leasing | 19% | 48% | 32% | 1.51 |
| Information | 15% | 47% | 38% | 1.48 |
| Retail Trade | 9% | 48% | 50% | 1.64 |
| Other Services (except Public Administration) | 15% | 49% | 37% | 1.36 |
| Professional, Scientific, and Technical Services | 16% | 53% | 27% | 1.25 |
| Transportation and Warehousing | 11% | 49% | 41% | 1.43 |
| Manufacturing | 12% | 52% | 44% | 1.47 |
| Wholesale Trade | 10% | 56% | 42% | 1.48 |
| Management of Companies and Enterprises | 0% | 58% | 48% | 1.40 |
| Health Care and Social Assistance | 9% | 60% | 55% | 1.19 |
| Finance and Insurance | 0% | 72% | 42% | 1.06 |

Source: Analysis of Census Bureau LEHD data.

9. What are the potential impediments to hiring?

Two potential sources of difficulty in filling an open position:

- (1) Insufficient capacity – Filling open position requires importing, creating, or significantly retraining workers.
- (2) Inefficient matching – Workers exist who would be better off in the open job, but something prevents the match (e.g., workers are not aware of the job opening, workers incorrectly assume they are not qualified, firms are not offering sufficient wages).

In order to understand where a hiring process can break down, it is useful to ask, “Who can fill an open position?”

- There are four types of workers:
 - Local vs. imported
 - Existing vs new
- There are three types of transitions:
 1. People who can transition with minimal training (e.g., people who need to acquire firm-specific training, but do not need training to address general skills or industry/occupation skills).
 2. People who can transition with moderate training (e.g., people who need to acquire firm-specific training and a small amount of general skills or industry/occupation skills).
 3. People who can transition with extensive training not typically provided by employers (e.g., people who need significantly more general skills or industry/occupation skills)

Who fills each type of job? How scarce are the people who could fill each job in Missoula?

Occupations exist on a spectrum. A substantial proportion of Missoula’s job openings entail transition types one and two (see table on next page) -- jobs that do not require extensive training and can likely be filled by new workers with limited experience or by workers in other occupations.

In Missoula, 1.9% of workers are customer service representatives, and 20% of workers are employed in an occupation that leads to work as a customer service representative. Difficulty filling this type of job is likely about firms’ ability to market jobs and compete against other local firms.

At the other end of the spectrum are positions that require extensive experience or training not available in Missoula, like surgeons. Missoula does not create surgeons. Surgeons require specialized training and licensing, so Missoula has very limited ability satisfy need for additional surgeons from the existing population (this need could be filled by surgeons who are retired or working in a different job like administration). Difficulty filling this type of job is likely about

firms' ability to compete against firms elsewhere, which depends heavily on Missoula's competitiveness relative to other places.

Expected Missoula openings based on BLS national employment projections for occupational turnover and job growth 2019-2029.

| Typical education for entry, experience, and on-job-trainings required | # | % coded |
|--|-------|---------|
| No formal education credential, short on the job training | 2,018 | 34% |
| High school or equivalent, short on-the-job trainings | 1,164 | 19% |
| Bachelor's degree, no experience, no special training | 645 | 11% |
| High school or equivalent, moderate on-the-job training | 467 | 8% |
| High school or equivalent, less than five years' experience | 281 | 5% |
| Postsecondary non-degree award, no experience, no training | 192 | 3% |
| No formal ed, less than five years exp, moderate on-the-job training | 123 | 2% |
| Post-secondary non-degree award, moderate on-the-job training | 127 | 2% |

Source: Employment projections based on applying US annual avg. employment openings from Employment Projections 2019-2029 to Occupation Employment Statistics for detailed occupations in Missoula (2019).

10. Ensuring sufficient capacity -- What is the capacity of the local workforce to meet demand and how do we grow it?

Workforce capacity is governed by a simple equation:

$$\text{Capacity} = \text{Population} \times \text{Participation} \times \text{Productivity}$$

That is, how much work can be done depends on how many people are available, how much effort they are willing to devote to work, and how much they can produce per unit of effort.

Given this framework, increasing the capacity of the workforce requires:

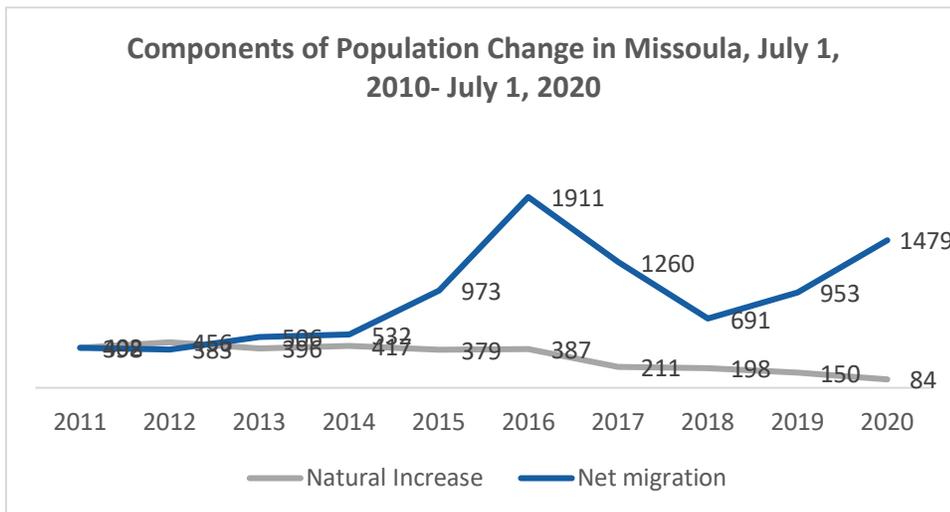
- Increasing the available population (via increasing net migration, increasing commuting from outside the area, or through natural increase);
- Increasing participation (both by getting more people willing to work—increase labor force participation—and by getting them to work more hours);
- Increasing productivity (increase worker skills through education and training, make sure workers and firms are well-matched, and invest in technology that can complement worker abilities).

A. Population = Working-age population + Commuters + Potential migrants

$$\text{Missoula's Population} = 100,000 + 3,000 - 7,000 + 1,000 \text{ net migrants/year}$$

1. Population change

Between July 1, 2010, and July 1, 2020, Missoula's population increased by over 12,000 residents. Roughly 75% of this increase stems from more people moving to Missoula than moving away (the remaining 25% reflects more births than deaths). However, in recent years the rate of natural increase has fallen.



Source: Census Population Estimates Components of Population Change

2. Migration

The most detailed data about migrants to the Missoula area comes from the American Community Survey. The smallest unit of analysis is a PUMA (public use microdata area). Missoula’s PUMA includes Missoula County, Ravalli County, Lake County, Mineral County, and Sanders County.

On average, each year between 2013-2018, this area attracted 15,275 migrants from outside the PUMA, and 11,000 people moved away from the PUMA.

The natural questions about migrants to the Missoula area: who are these people and where do they come from? Ideally, we would also like to know why these people choose Missoula.

The table shows that the Missoula area attracts young people at a high rate. Presumably, many of these people are moving to Missoula to attend UM or Missoula College. After college, many of these people leave. The Missoula area sees large net outmigration for 25–30-year-olds.

Net migrants to Missoula’s PUMA per 1,000 residents by age & education attainment

| | Less HS | HS | Some College | College | Grad/Prof | Total |
|----------|---------|-------|--------------|---------|-----------|-------|
| 0 to 4 | 19.4 | | | | | 19.4 |
| 5 to 14 | 28.3 | | | | | 28.3 |
| 15 to 24 | -10.7 | 49.3 | 158.4 | -98.6 | 101.0 | 57.5 |
| 25 to 29 | -365.1 | -36.6 | -36.7 | -42.4 | -379.7 | -77.5 |
| 30 to 44 | -66.4 | 63.9 | 19.0 | 40.0 | 82.1 | 39.1 |
| 45 to 64 | 57.7 | 29.6 | 18.2 | 13.5 | -0.5 | 20.7 |
| 65+ | 56.7 | -11.5 | 15.1 | 18.9 | -32.4 | 4.6 |
| Total | 14.2 | 24.3 | 37.9 | 8.9 | -1.6 | 20.9 |

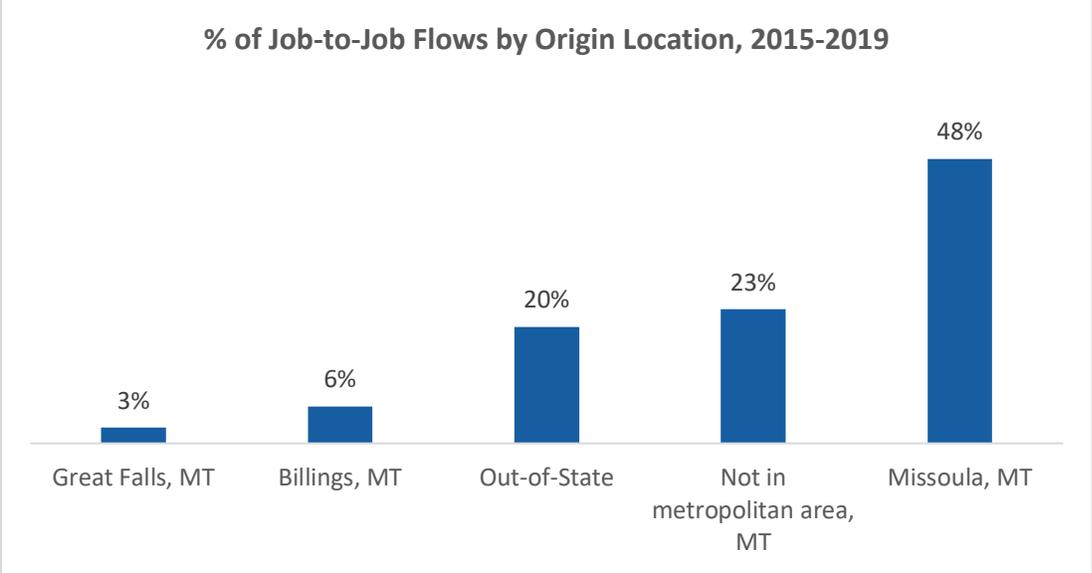
Source: Analysis of American Community Survey 2013-2018 5-year public-use microdata obtained from IPUMS-USA.

After age 30, the Missoula area tends to attract migrants, although net migration rates are weaker for people over age 65.

Two-thirds of in-migrants come from Montana, California, Washington, Idaho, and Colorado. Most likely come from metro areas, and, among those who move from outside Montana, a substantial share were born in Montana.

While we often imagine migrants choosing Missoula for lower cost of living, many people who move to the Missoula PUMA come from places with lower housing costs – particularly the 38 percent of migrants who come from elsewhere in Montana. Furthermore, among those who migrate from out-of-state, 65% come from places where median gross rent is higher than Missoula. However, two-thirds of out-of-state in-migrants come from places where median home values are lower than in Missoula.

Among workers flowing from job-to-job without a period of non-employment, a substantial share come from outside of Missoula. While these data suffer from the same potential geographic limitations as the commuting data discussed previously, it seems safe to conclude that a substantial share of new hires in Missoula come from outside of Missoula. This further suggests that ensuring that Missoula is a desirable location for migrants is an important part of workforce policy in Missoula.

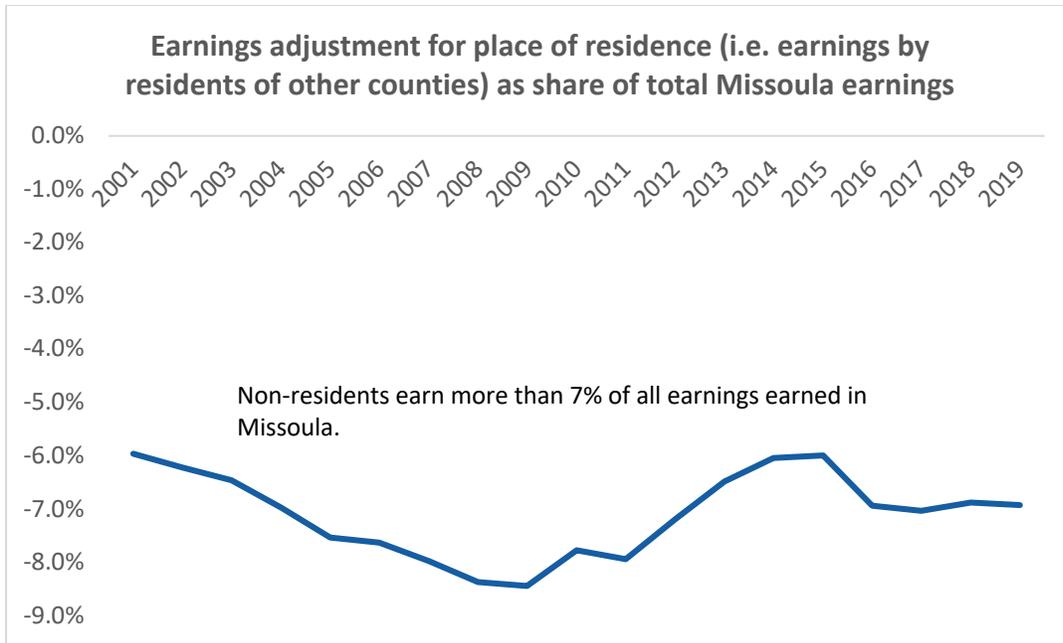


Source: Analysis of Census Bureau LEHD Job-to-Job Flow data.

3. Commuting

Missoula’s workforce benefits from a significant number of commuters. Precisely measuring the size of the commuter workforce is tricky. There are three ways to estimate the size of Missoula’s commuter flows:

- (1) BEA earnings adjustment – When computing personal income by county, the BEA adjusts earnings by place of work for place of residence.
- (2) LODES data – Administrative data from the Census that links employer address to employee address.
- (3) ACS place of work data – The ACS asks survey respondents to enter the place they worked last week.



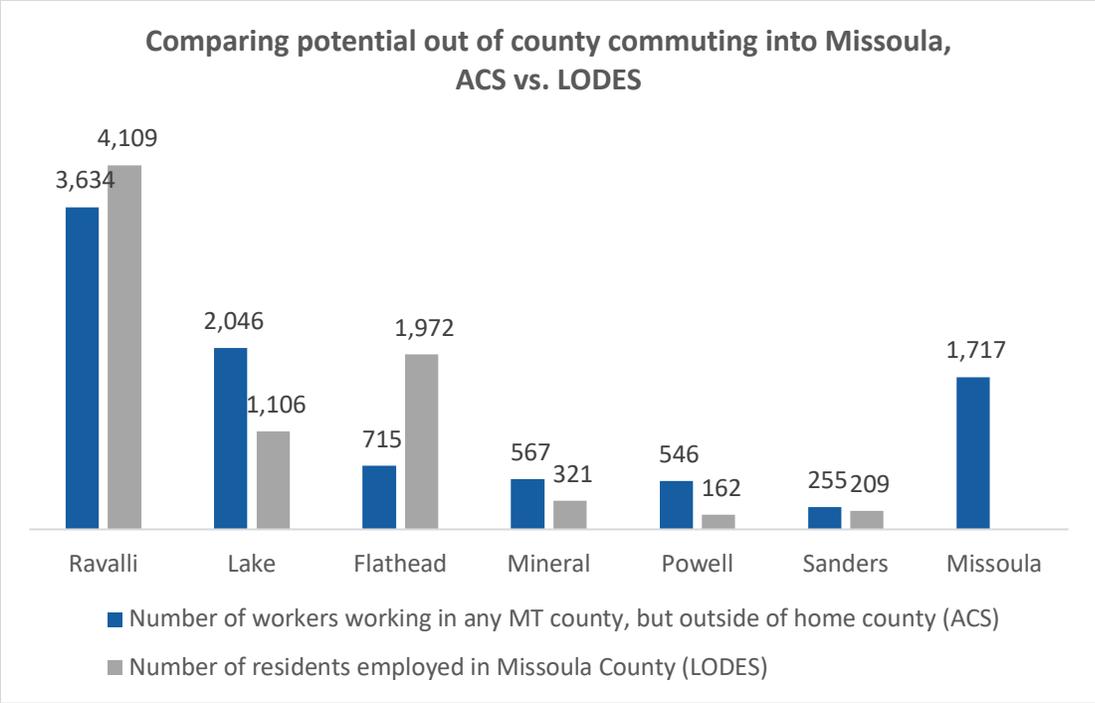
Source: BEA data – (Earnings by Missoula residents in other counties – Earnings by non-Missoula residents in Missoula)/Total earnings in Missoula

According to the LODES data, 17,534 Missoula workers live outside Missoula County, and 10,190 Missoula residents work outside Missoula County. This means that 28 percent of Missoula workers live outside the county and 19 percent of Missoula residents work outside the county.

This seems high. While this metric may capture both physical commuters and telecommuters, there are several reasons to think these data overstate actual flows. For instance, according to these data, 2.5 percent of Missoula workers live in Yellowstone County, and 1.8 percent live in Gallatin County. This could reflect lags in recording the residence for people who move (or who have more than one residence). More important, these data assume that place of work is the same as employer address. For many people (like construction workers), place of work differs from employer address.

While the precise magnitude is perhaps unreliable, these magnitudes of the net flow are consistent with the BEA data.

This figure compares the LODES data for the number of Missoula County workers who reside in each county to the ACS estimates for the number of residents of each county who work in any Montana county outside their home county. It is unlikely that all of those who reported working outside their home county in the ACS worked in Missoula County, so the blue bars overstate commuting into Missoula. While the LODES data and ACS are reasonably aligned for some counties, the data for Flathead County clearly illustrate the challenge. According to the ACS, only 715 Flathead County residents worked in Montana outside Flathead County. Given the distance, it seems unlikely that many of these people worked in Missoula County during the reference week. However, the LODES data indicates that nearly 2,000 Missoula workers live in Flathead County.

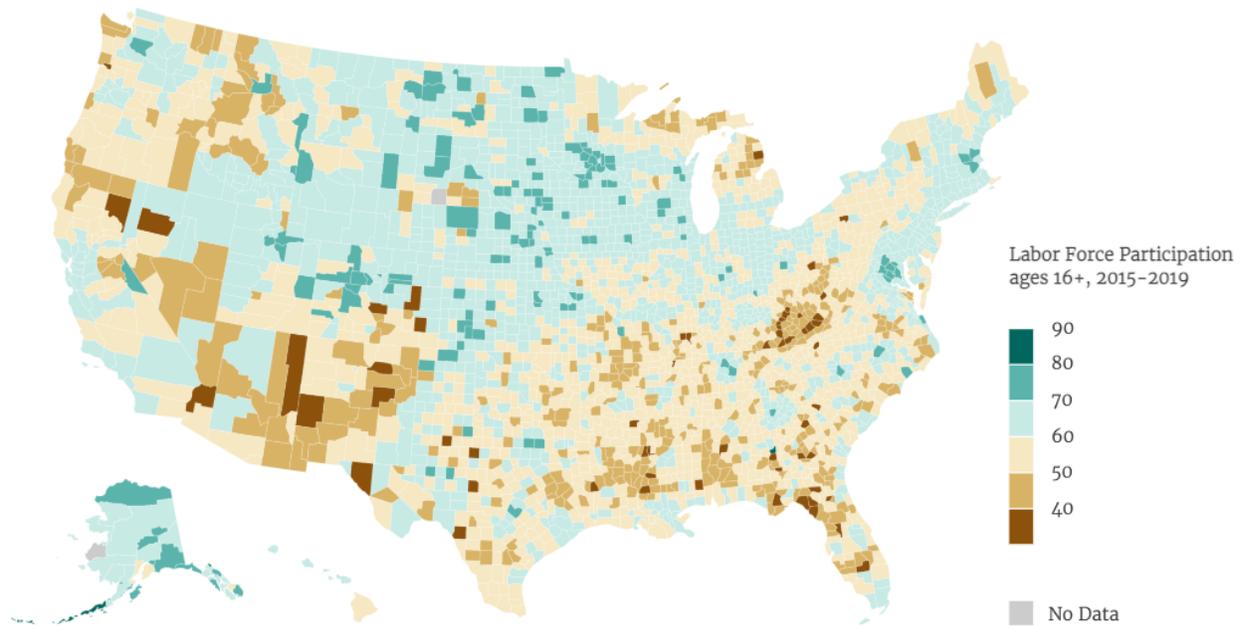


Ultimately, none of these data provide a very clear description of commuting; however, it seems clear that Missoula attracts a significant amount of non-resident workers. Higher than most small metros.

B. Participation

The second element of Missoula’s workforce is participation. What share of the population are willing to work? Among those who are willing to participate, how much are they willing to work?

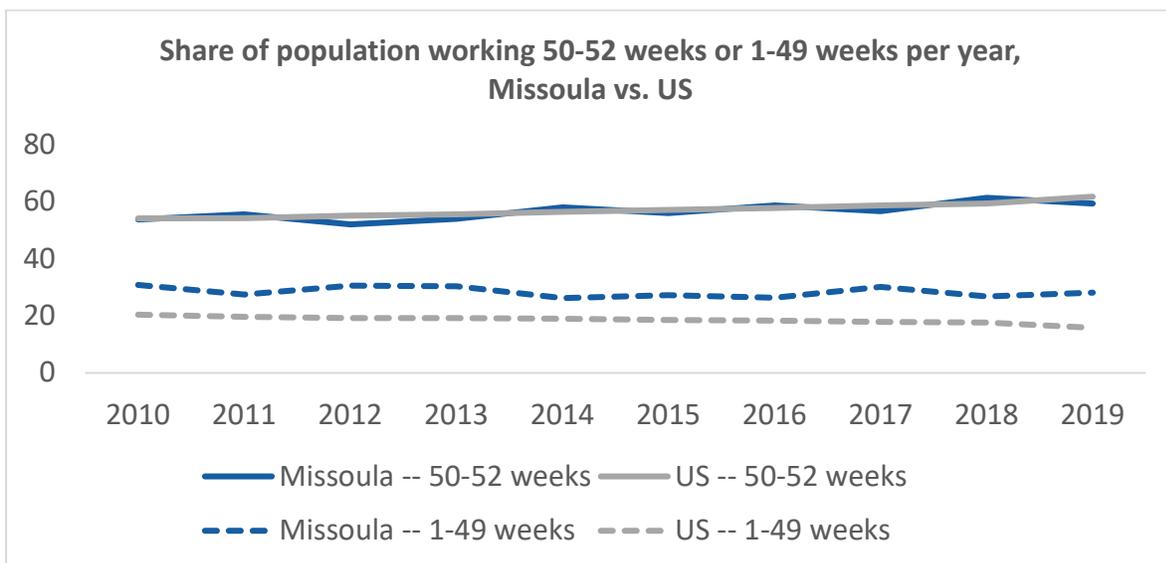
Labor force participation in Missoula is relatively high and stable. Roughly 70 percent of Missoula’s population over age 16 participates in the labor force. This ranks in the top 6 percent of all metro/micro areas. It has also remained fairly stable over the past decade.



Source: American Community Survey (2019 5-year file)

While Missoula’s labor force participation exceeds the US, the gap between Missoula and the nation reflects more people who work less than full-time. The share of the population working 50-52 weeks per year is roughly equal to the US level. However, Missoula has much higher share of its population working 1-49 weeks. Usual hours worked per week is also lower in Missoula. Nationally, usual hours per week average 38.8 hours, but in Missoula usual hours average 37.1.

This suggests that Missoula may be able to increase workforce capacity by getting people who work less than full-time, full-year to work more weeks or hours.

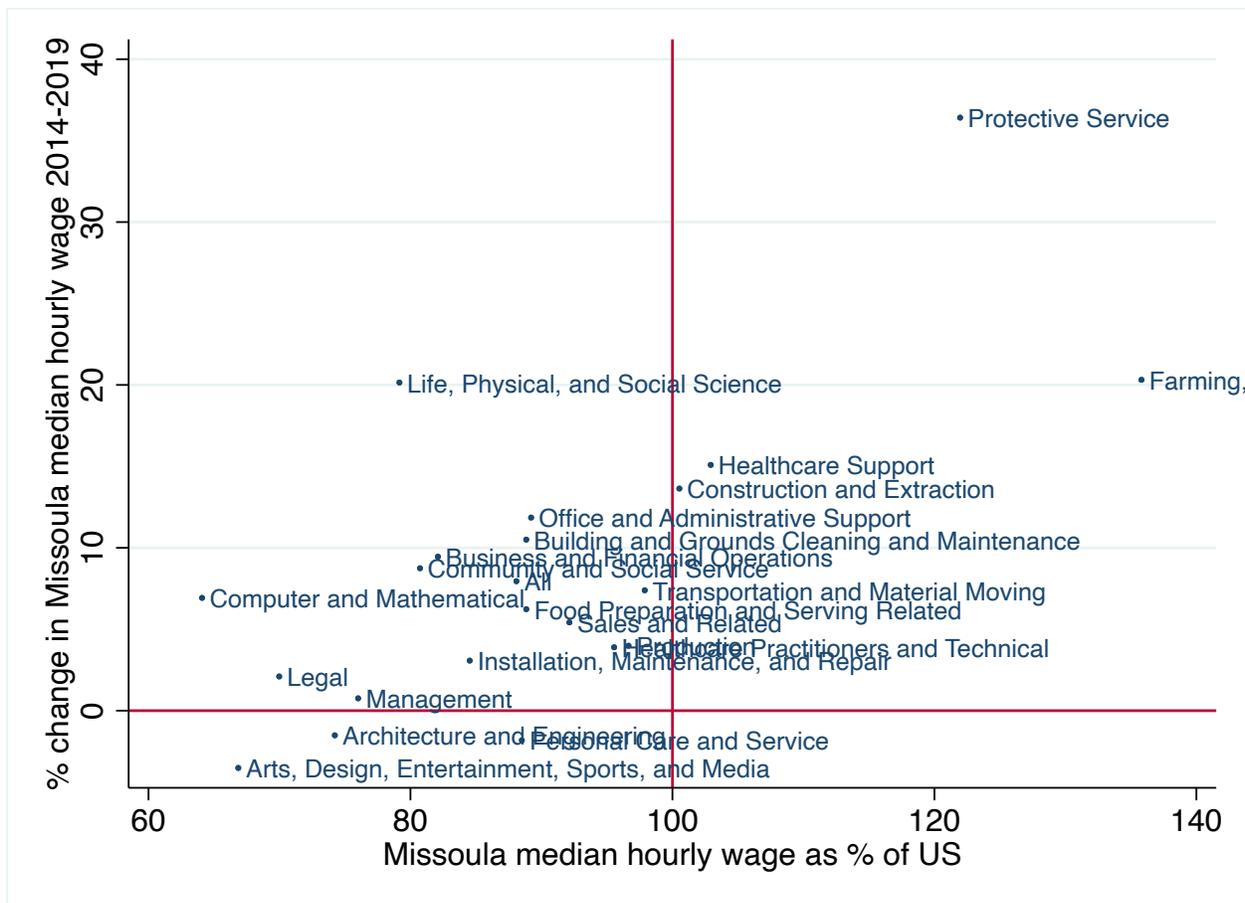


Source: American Community Survey 1-year files

C. Productivity

Addressing productivity is more complicated. Productivity depends on individual characteristics (e.g., skills and effort); firm characteristics (demand, technology); individual-firm match (firm needs workers to use all their different skills and workers happily provide effort); community characteristics (community infrastructure). Worker productivity can grow via investments in improving any of these areas.

More data on productivity was presented in the main text; however, here we simply present data that proxy for productivity – hourly wages. The horizontal axis shows median hourly wages in Missoula relative to the US. For most occupations, median hourly wages are low (left of vertical line). The vertical axis shows growth in median hourly wages (adjusted for inflation). Wages for most occupations grew in recent years.



Source: Analysis of Occupation Employment Statistics, 2014 and 2019

11. What are potential impediments to efficient matching?

- (1) Mismatch – Qualified workers do not take jobs that might make them better off due to:
 - (a) Information problems – People are unaware of the opportunity;
 - (b) Evaluation problem – Actually qualified workers (or firms) incorrectly decide they are not right for job;
 - (c) Risk -- Risk aversion stops qualified workers from making the leap to a potentially better job.
- (2) Skill shortage – There are people who would be better off taking an open job, but they do not have the skills. They either mis-invested (made a mistake when deciding which skills to acquire), or they under-invested.
- (3) Inability to complete – Qualified people are not interested in taking the open job because they are better off taking a different job (or not working at all).