

**EOS** 2018

# THE FUTURE OF HIGHER EDUCATION IN MONTANA

43RD ANNUAL ECONOMIC OUTLOOK SEMINAR



# ABOUT THE BUREAU OF BUSINESS AND ECONOMIC RESEARCH

The Bureau of Business and Economic Research is the main research unit of the College of Business at the University of Montana. Established in 1948, its mission is to inform Montanans about the economic climate in which they live and work. In addition to conducting its Economic Outlook Seminar across the state at the beginning of each year, BBER researchers are engaged in a wide range of applied research projects that deal with different aspects of the state economy, including survey research, economic analysis, health care research, forecasting, wood product research and energy research. Contact us at (406) 243-5113 or [bber@business.umt.edu](mailto:bber@business.umt.edu) if we can be of any help to you or your business.

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## DATES & LOCATIONS

**Helena**  
Tuesday, January 23, 2018  
Great Northern Hotel

**Great Falls**  
Wednesday, January 24, 2018  
Hilton Garden Inn

**Missoula**  
Friday, January 26, 2018  
Hilton Garden Inn

**Billings**  
Tuesday, January 30, 2018  
DoubleTree

**Bozeman**  
Wednesday, January 31, 2018  
The Commons

**Butte**  
Thursday, February 1, 2018  
NorthWestern Energy General Office

**Kalispell**  
Tuesday, February 6, 2018  
Hilton Garden Inn

**Lewistown**  
Tuesday, March 13, 2018  
Central Montana Education Center

**Havre**  
Wednesday, March 14, 2018  
MSU Northern Hensler Auditorium

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# **The Benefits of Higher Education: Past, Present, and Future**

Bryce Ward, Associate Director  
Bureau of Bus. & Econ. Research



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The Benefits of Higher Education

**Note: The slides in this packet are intended as a handout that summarizes the material covered. They will not match the presentation.**



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The Benefits of Higher Education

**Question 1: Why does higher education exist? What benefits does it provide?**



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**Higher education exists to increase the capacity of the economy by:**

- generating new ideas (research)**
- educating students and the public (teaching).**

**The benefits generated by higher education are large (and likely exceed their costs).**

*Doubling the number of universities within a region is associated with a 4% increase in future GDP per capita. This growth is not the mechanical result of spending at the university. It is not reversal causality (i.e., growing places add universities). It stems from increasing the supply of the educated workers and via increased innovation. Areas with greater university density also have stronger pro-democratic views.*

Source: Valero and Van Reenen (2016) "The economic impact of universities: Evidence from across the globe"



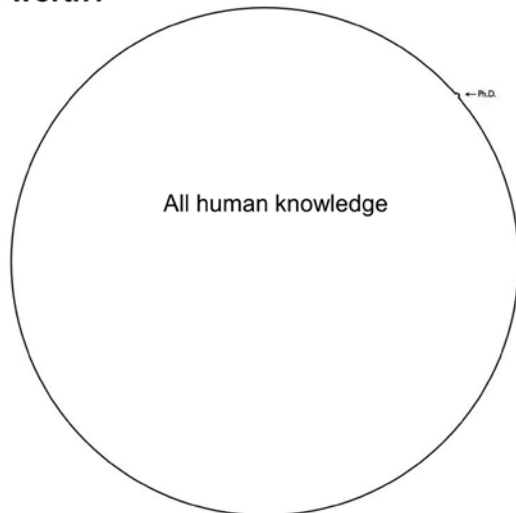
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**Question 1a: What's the value of generating new ideas (research)?**



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**Research leads to tiny bumps in the set of human knowledge. What is this worth?**



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**3 types of research (value of each differs)**

- (1) Pure basic research (Bohr) – adding ingredients to the cupboard**
- (1) Pure applied research (Edison) – creating a new recipe**
- (1) Use-inspired basic research (Pasteur) – doing both at the same time**

		Immediate Application	
		NO	YES
Contribution to Fundamental Knowledge	YES	Bohr's Quadrant	Pasteur's Quadrant
	NO	Other research!	Edison's Quadrant

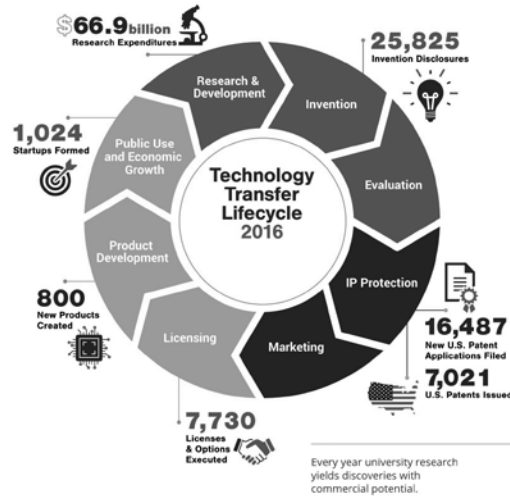
Source: Gans, J. S., & Murray, F. (2011). Funding scientific knowledge: Selection, disclosure and the public-private portfolio.



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## How does academic research lead to tangible innovation and improvements in welfare?

- (1) Faculty publishing
- (2) University patenting and licensing
- (3) Faculty consulting
- (4) Faculty entrepreneurship
- (5) Informal interactions between university and industry researchers
- (6) Training and placement of students in industrial positions



Source: <http://www.autm.net/AUTMain/media/SurveyReportsPDF/AUTM-FY2016-Infographic-WEB.pdf>



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## Local economic effects of university research/university spending

Hausman (2017) – University innovation leads to employment and wages gains in University communities. University innovation leads to local start-ups, but most employment gains come from large firms opening or expanding near universities.

Kantor and Whalley (2014) -- \$1 of additional research university funding leads to \$0.83 of additional wages outside the education sector. Effects are larger for more research intensive schools and in industries aligned with university research.

Aghion et al (2009) – Effects of additional spending on higher education vary across states depending on state proximity to “technological frontier.” States close to the the technological frontier enjoy large benefits (e.g., \$1000 of additional research funding per person in a school-age cohort raises per capita income in the whole state by \$274 and \$1000 in additional funding per person in a cohort for regular 4-year colleges increases per capita income by \$18). States far from the technological frontier do not benefit from additional spending on research, but do benefit from additional spending on regular 4-year college.

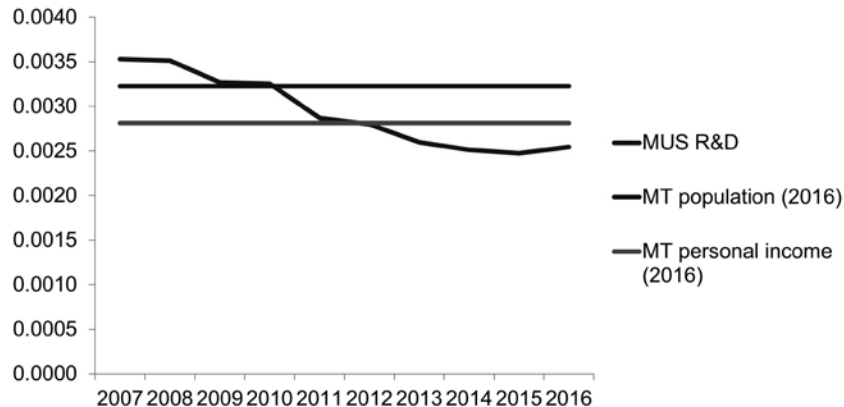
Sources: Hausman (2017) “University Innovation and Local Economic Growth”; Kantor and Whalley (2014) “Knowledge spillovers from research universities: evidence from endowment value shocks”; Aghion et al (2009) “The Causal Impact of Education on Economic Growth: Evidence from U.S.”



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MUS averaged \$182M in annual research funding between 2007-2016. In recent years, this is below what would be expected based on Montana’s size.

Montana University System Research Funding as Share of All University Research Funding



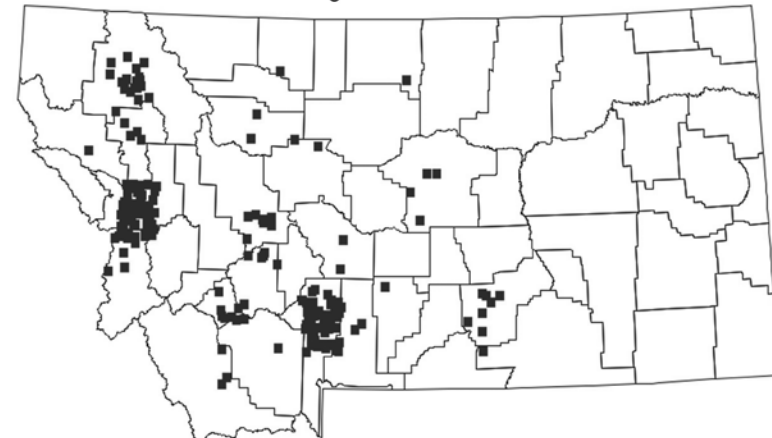
Source: Analysis of NSF HERD data



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## The clustering of Montana’s tech companies near higher education is not coincidence.

Location of Montana High-Tech Business Alliance Members



Source: BBER (2017) A Profile of Montana’s High Tech Industries.



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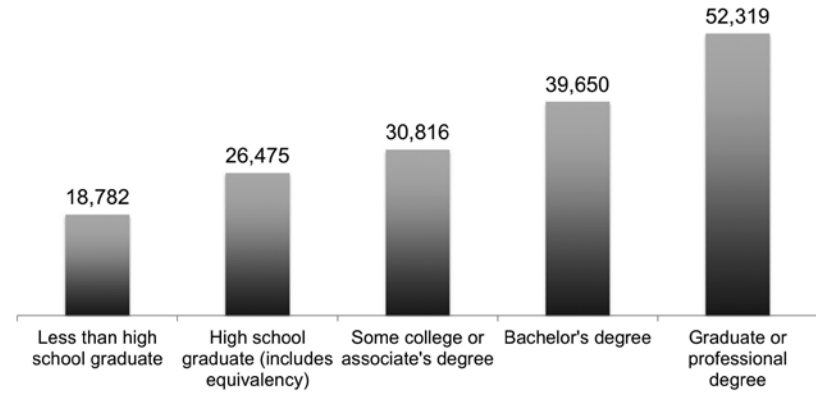
## Question 1b: What's the value of educating students?



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## People who go to college earn more ...

Median earnings by educational attainment for Montana adults aged 25+, 2016



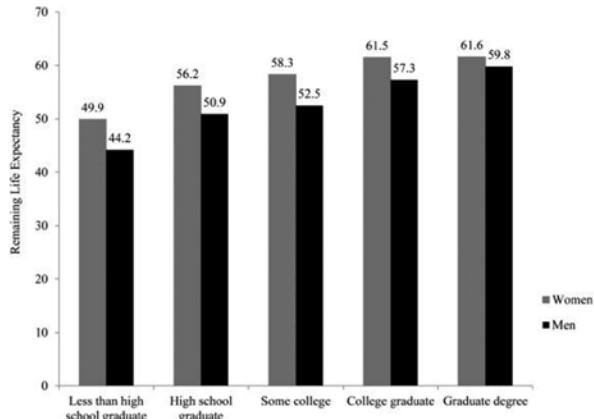
Source: BBER analysis of 2016 American Community Survey



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## ... and live longer, healthier lives.

Remaining life expectancy for US adults at age 25 by educational attainment, 2005



Source: Brian L. Rostron et al., "Education Reporting and Classification on Death Certificates in the United States," *Vital and Health Statistics*, Series 2, no. 151 (2010): 1-16.

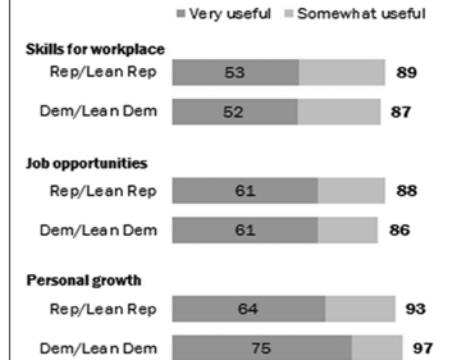


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## Graduates recognize the value of their degrees.

### Across party lines, college grads viewed their college experience positively

% of college graduates with four-year degrees who say their own college education was \_\_\_\_\_ in each



Source: Survey conducted May 25-June 29, 2016.

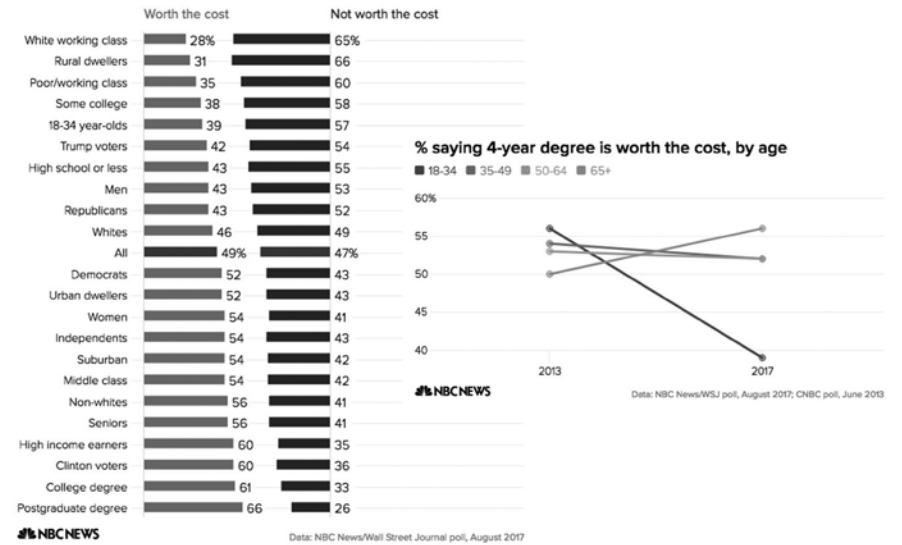
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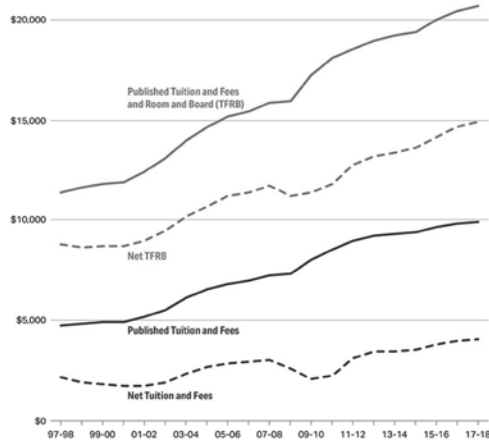
## Question 2: Is college currently worth it?

## A four-year college degree is ... ?



## Costs are rising. Will this continue?

Average Published and Net Prices in 2017 Dollars, Full-Time In-State Undergraduate Students at Public Four-Year Institutions, 1997-98 to 2017-18



	MSU	UM
Published TFRB	20,467	19,521
Net TFRB (14/15)	14,236	13,112

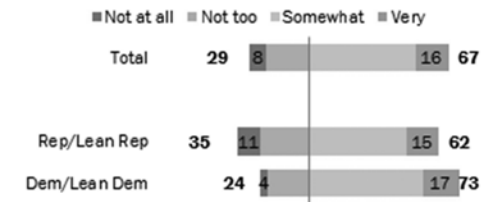
Source: collegesimply.com

Source: College Board Trends in Higher Education

## Are the benefits of higher education keeping pace with rising costs?

### In 2016, most Republicans said college prepares someone well for workforce

% who say a four-year degree prepares someone well for a well-paying job in today's economy



Note: Don't know responses not shown.  
Source: Survey conducted May 25-June 29, 2016.

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**For average attendee, college pays off (gain in lifetime earnings exceed costs), and the expected return on college has increased over time.**

**Present discounted value of college relative to high school degree net of tuition, 1965–2008**

College/high school difference, 2009 dollars



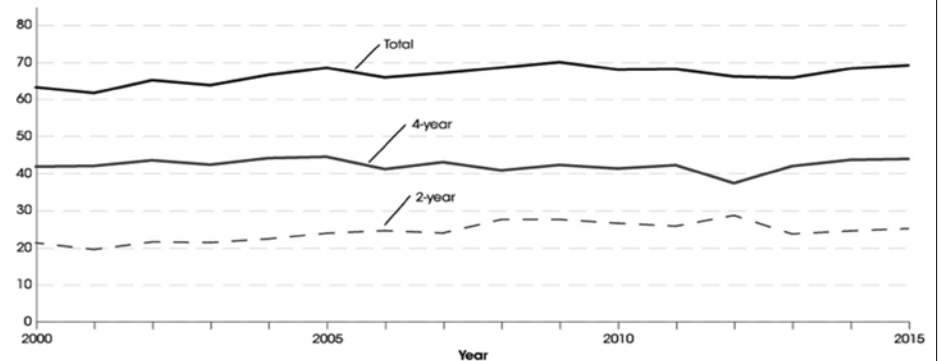
Source: Autor, D. (2014) Skills, education, and the rise of earnings inequality among the "other 99 percent"



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**In spite of net cost growth, enrollment propensity has remained fairly constant...**

Percentage of high school completers who were enrolled in 2- or 4-year colleges by the October immediately following high school completion, by level of institution: 2000–2015



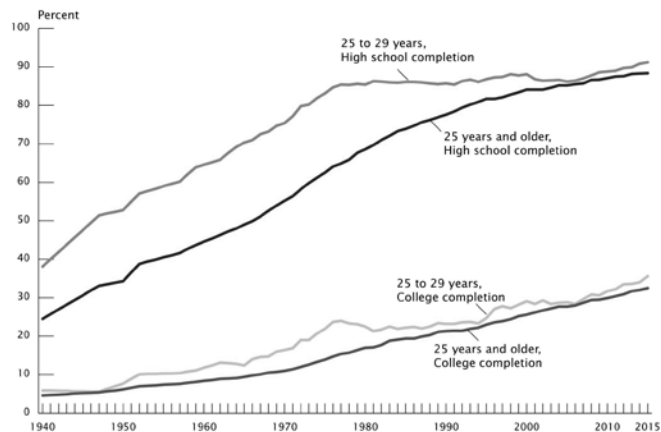
SOURCE: U.S. Department of Education, National Center for Education Statistics. (2017). *The Condition of Education 2017* (2017-144), *Immediate College Enrollment Rate*.



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**... and the share of people with a college degree has continued to grow.**

**Percentage of the Population 25 Years and Over Who Completed High School or College by Age Group: Selected Years 1940–2015**



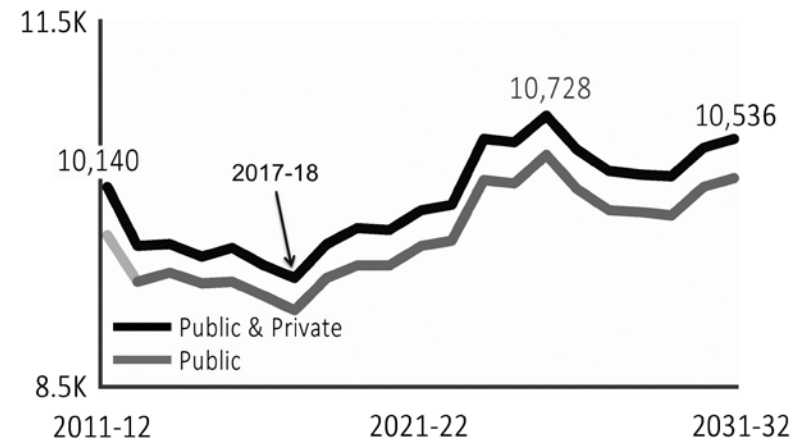
Note: Data for every individual year are not available for years prior to 1964.  
Source: U.S. Census Bureau, 1947–2015 Current Population Survey and 1940 Decennial Census.



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**Aside: Assuming enrollment propensity remains constant, enrollment at Montana colleges is likely to grow over the next few years.**

Montana high school graduates (actual and projected), 2011–2032



Source: Bransberger & Michelau (2016) *Knocking at the College Door: Projections of High School Graduates*

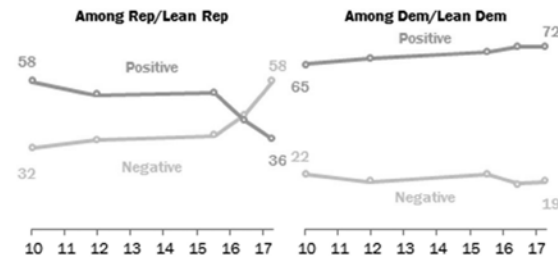


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Some of the negativity directed at colleges appears to be an expression of partisanship.

Since 2015, sharp rise in share of Republicans saying colleges have a negative effect on the country

% who say colleges and universities have a \_\_\_ effect on the way things are going in the country



Note: Don't know/Other responses not shown.  
Source: Survey conducted June 8-18, 2017.

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Question 3: Will the expected net benefits of college change over time?

(a) Will individuals be able to obtain the benefits of higher education via other means (e.g., online learning)?

(b) Will the benefits of higher education fall (e.g., will automation or other forces reduce the returns to higher education in the labor market)?



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Question 3a: Can something other than traditional higher education generate the same benefits with a lower cost?

A simple story for how universities generated benefits (proximity to information and expertise):

Historically, information and knowledge were scarce. However, they were relatively abundant at universities. Universities had much larger libraries than were available elsewhere. They had labs, computers, and other specialized equipment that were not easily accessed by those wanting to learn. They paid faculty with extensive training and knowledge to share their knowledge and experience. Thus, a big part of why people went to college was to access the scarce resources "necessary" to build their human capital.

Technology has made information abundant. Thus, if the primary source of value in colleges was access to information and expertise, then colleges may face increased competition from technology-driven substitutes.



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Students differ.

Six types of students

- (1) Aspiring academics – traditional high achievers, plans for grad school.
- (2) Coming of age – don't know what they want to do yet, but value broad offerings, active social culture, and ability to try lots of things.
- (3) Career starter – job oriented, looking for college that helps them achieve desired career in shortest time.
- (4) Career accelerators – older students looking to advance existing career.
- (5) Industry switchers – older students looking to start-over in new field.
- (6) Academic wanderers – don't know exactly what they are looking for.

Source: Ladd et al (2014) The Differentiated University: Recognizing the Diverse Needs of Today's Students



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## Source benefits differ.

(0) *College is fun.*

(1) *Colleges generate valuable human and social capital.*

- Colleges make students smarter. That is, college helps students acquire cognitive and technical skills that they otherwise may not acquire:
  - Colleges generate learning that is hard to replicate on one's own.
  - Colleges provide necessary constraints (i.e., people won't learn unless forced by someone)
- Colleges create productive habits.
- Colleges help students build valuable social networks/social skills.
- Colleges provide inspiration and guidance (i.e., it's a purposefully experimental period where people can explore different potential paths and access helpful supports once they've chosen a goal).

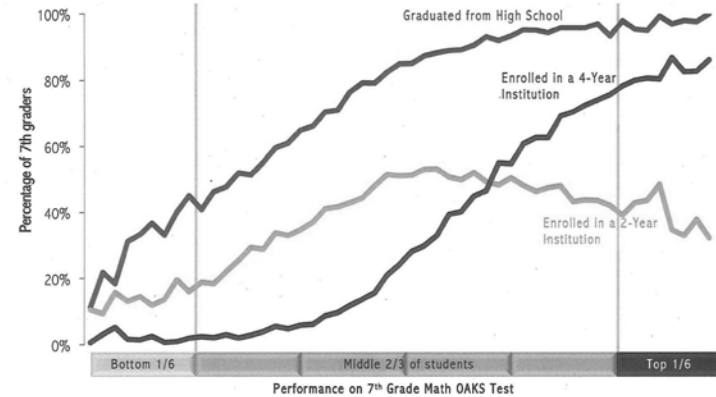
(2) *College is a signal.* Under purest version, college education itself does not do anything to transform students and make them more productive. It is simply something that allows high ability people to distinguish themselves from low ability people.



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## Is higher education just signaling?

Graduation and postsecondary enrollment outcomes for 7<sup>th</sup> graders by academic performance

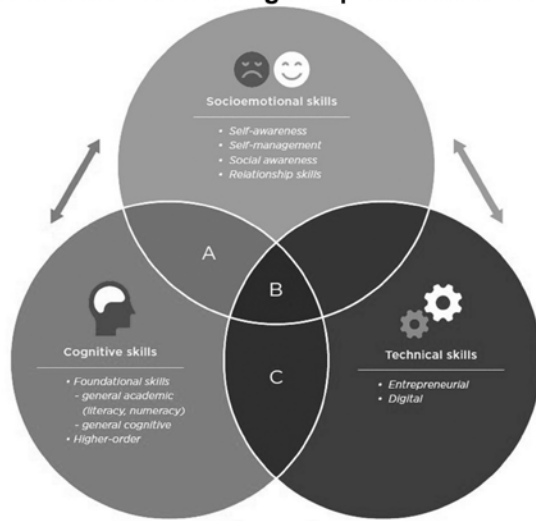


Based on ECONorthwest analysis of 2004-05 ODE data.



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## To what extent does college help individuals cultivate skills?



Source: World Bank (2017) World Development Report 2018 – Learning to realize education's promise.



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## Schools differ.

Highly selective



Non-selective

Tuition covers less than half of costs, 89% of students report informal interaction with faculty, 81% participate in school clubs, <25% of courses use multiple choice exams, 100% of students report writing a paper graded by professor, original course material; 8% attend part-time; 94% graduate with baccalaureate w/in 5 years at the institution they started at.

97% of costs covered by tuition or gov't appropriation; 29% of students report informal interaction with faculty; 13% participate in school clubs; 70% of courses use multiple choice exams; 5% of students report writing a paper graded by professor; fairly standardized course material; 59% attend part-time w/in first 2 years; 7% graduate with baccalaureate w/in 5 years at any institution.

Source: Hoxby (2014) "The economics of online postsecondary education: MOOCs, Nonselective Education, and Highly Selective Education."



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## Can something other than traditional higher education generate the same benefits with a lower cost?

*Is the hypothetical alternative as fun?*

*Is the hypothetical alternative as capable of increasing consumers human and social capital?*

*Does it provide a useful signal in the marketplace?*

Technology may change some aspects of college education (particularly standardized elements that do not include much interaction, creativity, or extensive feedback from instructors), but it will likely free up resources that can be used to enhance not replace higher education.



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## Urban economists have seen this movie before.

■ Edward L. Glaeser is Paul Sack Associate Professor of Political Economy, Harvard University, and Faculty Research Fellow, National Bureau of Economic Research, both in Cambridge, Massachusetts.

From 1880 to 1940, 53 percent of the population lived in the ten largest cities. By 1990, that percentage had risen to 73 percent. In 2000, it was 78 percent. In 2010, it was 81 percent. In 2015, it was 83 percent. In 2020, it was 85 percent. In 2030, it will be 87 percent. In 2040, it will be 89 percent. In 2050, it will be 91 percent. In 2060, it will be 93 percent. In 2070, it will be 95 percent. In 2080, it will be 97 percent. In 2090, it will be 99 percent. In 2100, it will be 100 percent.

Are they right? Will the 21st century see the rise in urbanization over the next century?

*Journal of Economic Perspectives—Volume 12, Number 2—Spring 1998—Pages 139–160*

## Are Cities Dying?



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As such, some are skeptical.

**There is no substitute for face-to-face interaction. Anyone can learn from a book—human interaction is what people pay for. I'd be angry if I was a student. [Digital education] is like porn for the mind.**

**David Albouy  
Urban Economist  
University of Illinois**

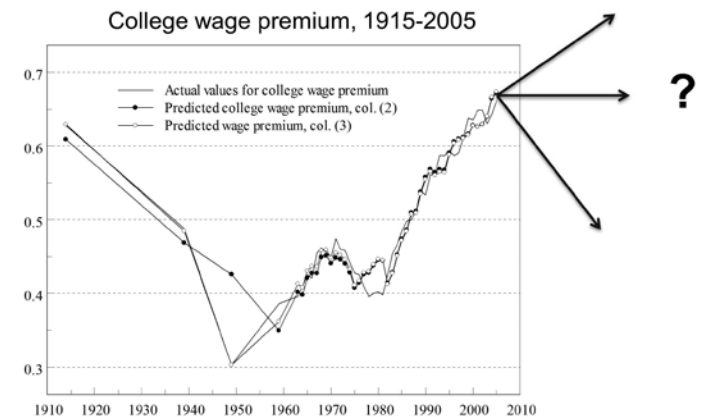
Source: <https://qz.com/1065818/ai-university/>



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**Question 3b: Will economic changes reduce the benefits of attending college? Will demand for college educated workers fall?**



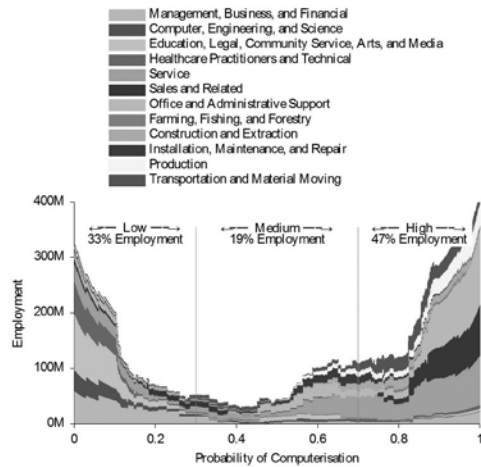
Source: Goldin and Katz (2009) *The Race Between Education and Technology*



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## The robots are coming, the robots are coming, ... 47% of US employment faces high risk of computerization.



Jobs are less susceptible if they involve:

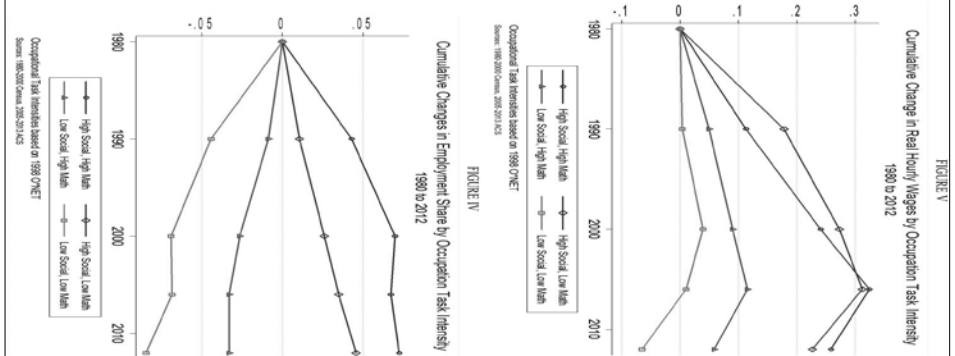
- (1) Perception and manipulation (finger dexterity, manual dexterity, and cramped work space)
- (2) Creative intelligence (originality, fine arts)
- (3) Social intelligence (social perceptiveness, negotiation, persuasion, assisting or caring for others)

Source: Frey and Osborne (2013) "The future of employment: How susceptible are jobs to computerisation"



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## Jobs that entail more social skills have seen faster employment and wage growth since 1980.



Source: Demming, D. (2015) "The growing importance of social skills in the labor market."



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## High wage jobs and jobs where most people have at least a Bachelor's degree face much less risk from automation.

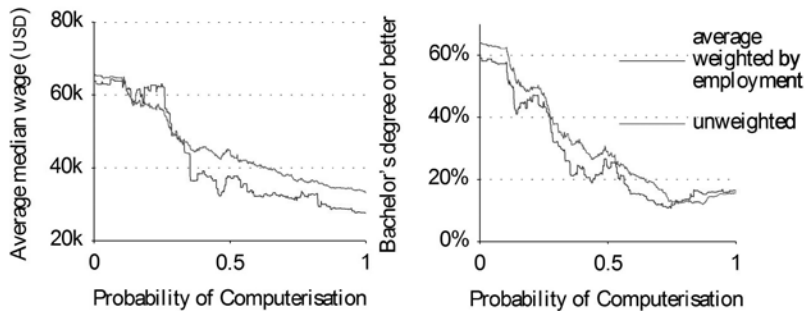


FIGURE IV. Wage and education level as a function of the probability of computerisation; note that both plots share a legend.

Source: Frey and Osborne (2013) "The future of employment: How susceptible are jobs to computerisation"



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The existence of technology that can replace a worker does not mean that it will. Technology replaces workers when it is profitable to do so, so other conditions matter.

Technology replacing workers does not mean that overall employment or welfare will fall. Replacing workers in one area typically leads to growing employment elsewhere.



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Technological change (and other economic change) will reduce employment in some occupations in the future. Some of the jobs lost will be held by people with higher education. However, people with higher education are less likely to work in jobs affected by automation, and they are frequently better equipped to adapt to changing economic conditions.

As such, investments in higher education are expected to continue to pay off.



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## Summary

Why does higher education exist?

*Higher ed exists to increase the capacity of the economy via research and teaching. Both of which produce significant economic benefits.*

Is college worth it for today's students?

*On average, the benefits (in terms of larger earnings, better health, etc.) exceed the costs.*

Will college still be worth it in the future? Will technological or other economic change create a viable substitute for traditional higher education or reduce the returns to higher education?

*While changes may modify some parts of higher ed (and provide a substitute for some lower aspects of it), learning from individualized feedback and face-to-face interactions with students and faculty will remain the heart of higher ed.*

*More educated people are less likely to face competition from machines and are likely better suited to adapt to changing economic conditions.*



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# The State and National Economic Outlook

Patrick M. Barkey, Director  
Bureau of Business and Economic Research



2018 U.S. and Montana Outlook

# The U.S. Economy Quietly Improving

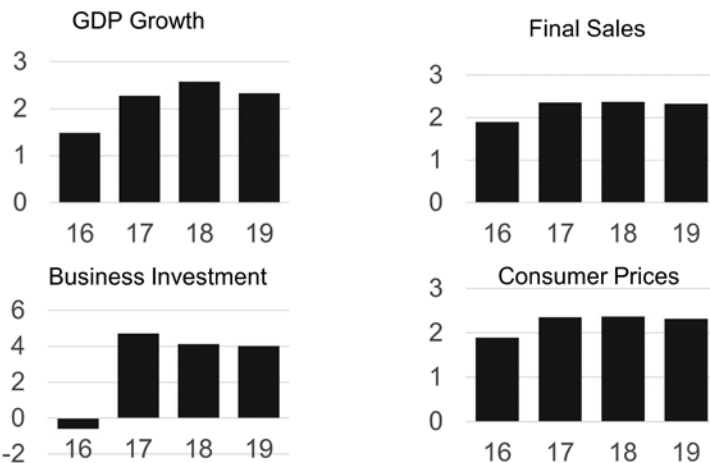
- Chaos in Washington not echoed on Wall Street
- Strong growth in second half of 2017
- Encouraging signs for business investment, wages
- Interest rates and inflation remain low
- Global growth has improved significantly



2018 U.S. and Montana Outlook

## Upbeat News for the U.S. Economy

Percent Growth, Actual and Predicted



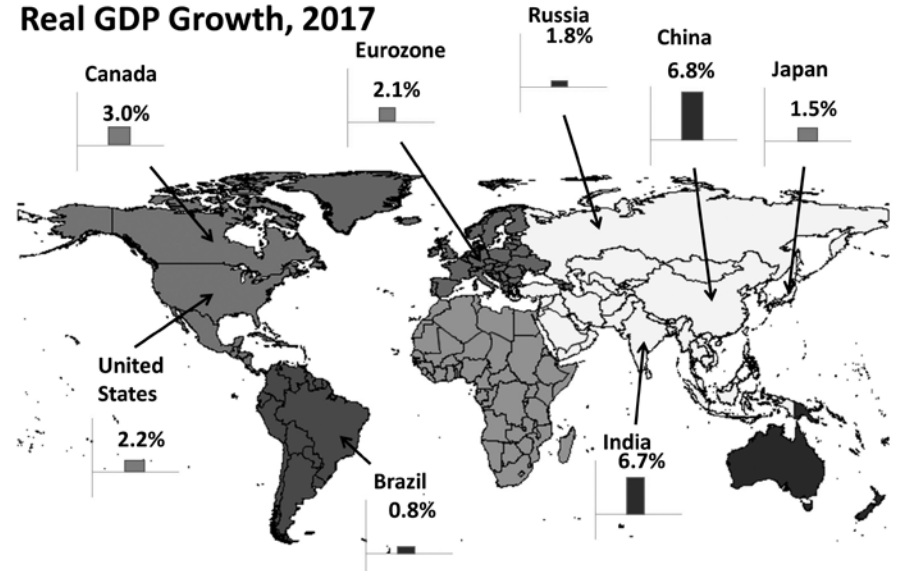
Source: IHS Markit



2018 U.S. and Montana Outlook

## Synchronized Global Growth

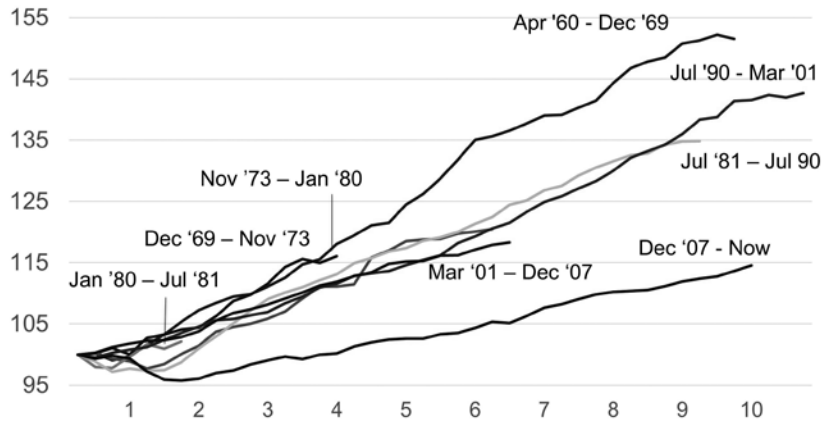
Real GDP Growth, 2017



Source: World Bank

## Growth Much Slower Than Past Cycles

Real GDP Index



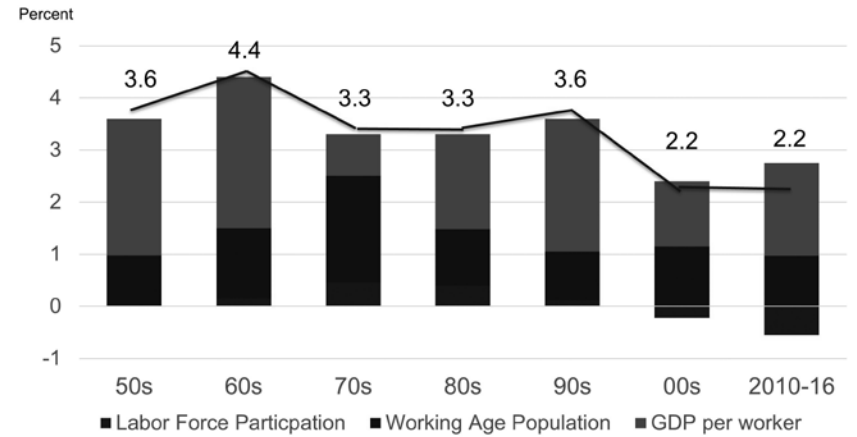
Source: U.S. Bureau of Economic Analysis



2018 U.S. and Montana Outlook

## The Cost of Lost Labor Force Participation

Contribution to Real GDP Growth, by Decade



Source: Standard and Poor



2018 U.S. and Montana Outlook

## U.S. Crude Oil Production Rising Again

U.S. Monthly Crude Oil Production, Thousand bbl.



Source: U.S. Energy Information Administration



2018 U.S. and Montana Outlook

## No Sign of New Production in Montana

Montana Monthly Crude Oil Production, Thousand bbl.



Source: U.S. Energy Information Administration

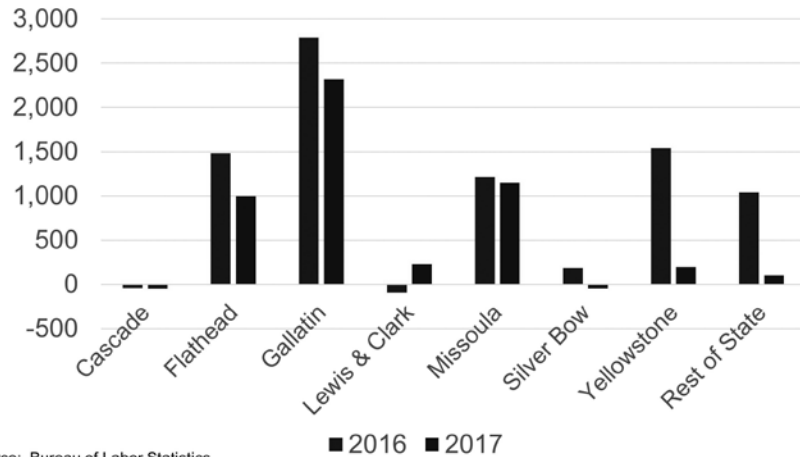


2018 U.S. and Montana Outlook



## Job Growth Continued Into 2017

Growth in Jobs, FY2016 and FY2017



Source: Bureau of Labor Statistics

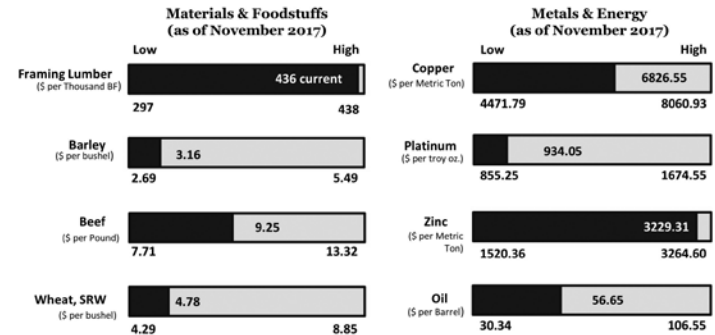


2018 U.S. and Montana Outlook

## Mixed Story for Most Important Commodities

Select Commodity Prices

November 2017 vs. 5-Year High and Low



Source: World Bank, USDA, Random Lengths



2018 U.S. and Montana Outlook

## Montana General Fund Revenue Collections, FY15-FY17, \$ Millions

	Fiscal Year			FY2016/FY2017	
	2015	2016	2017	Change	Pct. Change
Individual Income Tax	1180.5	1181.0	1178.0	-3.1	-0.3%
Estimated Payments	271.2	278.5	271.3	-7.3	-2.6%
Refunds	-256.1	-275.3	-289.1	-13.8	5.0%
Withholding	875.2	900.5	940.9	40.4	4.5%
Property Tax	258.0	275.0	272.3	-2.7	-1.0%
Corporation Tax	168.0	119.0	125.0	6.0	5.1%
Oil and Gas Prod. Tax	187.8	95.5	98.1	2.6	2.7%
Coal Severance Tax	61.8	54.5	55.4	0.8	1.5%
<b>General Fund Revenues</b>	<b>2169.1</b>	<b>2110.4</b>	<b>2134.7</b>	<b>24.3</b>	<b>1.1%</b>

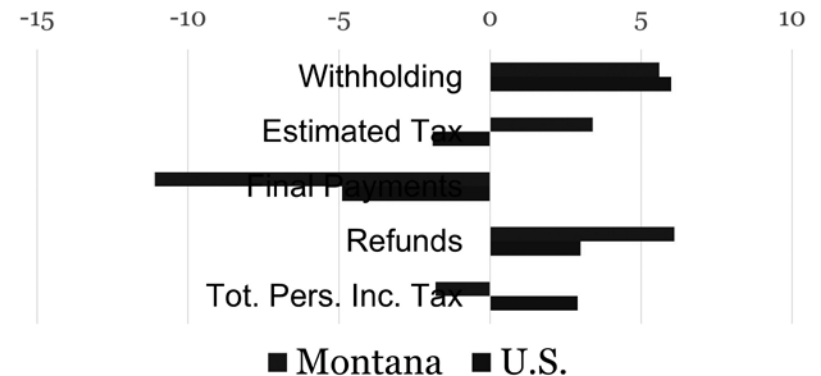
Source: Montana Department of Revenue



2018 U.S. and Montana Outlook

## Spring Was Cruel to the Montana Treasury

Percent Change Jan-May 2017 vs. Jan-May 2016

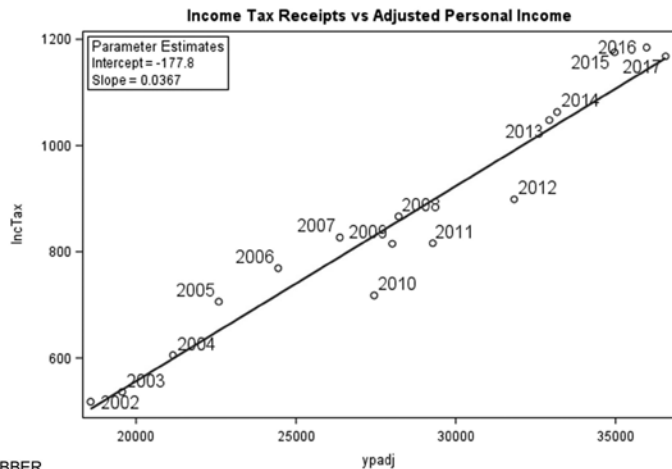


Source: Rockefeller Institute



2018 U.S. and Montana Outlook

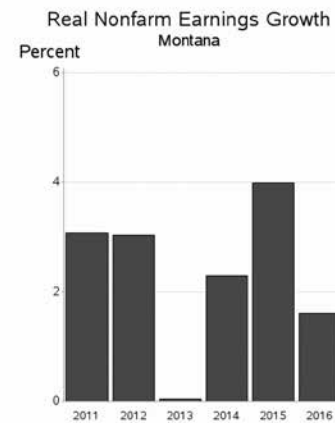
# Relationship Between Tax Receipts and Personal Income Far From Perfect



Source: BBER



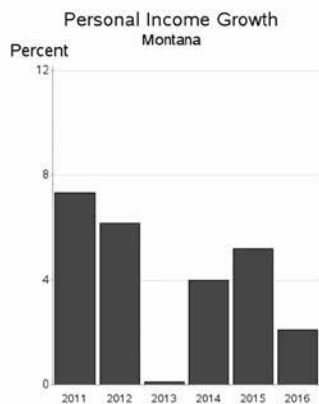
2018 U.S. and Montana Outlook



Source: U.S. Bureau of Economic Analysis



2018 U.S. and Montana Outlook

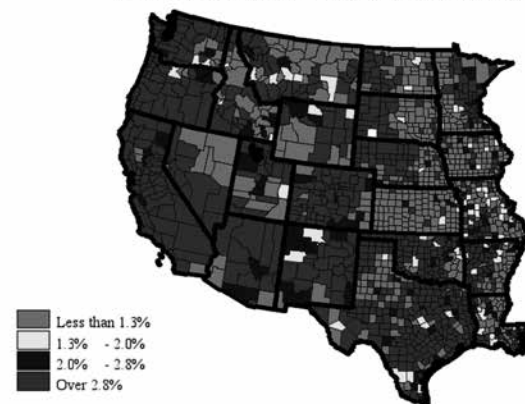


Source: U.S. Bureau of Economic Analysis



2018 U.S. and Montana Outlook

## Percent Growth in Personal Income 2014

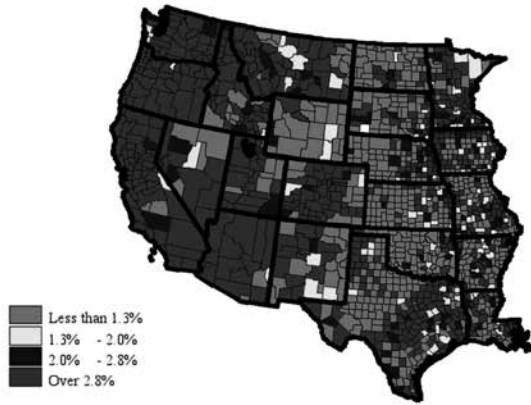


Source: Bureau of Economic Analysis



2018 U.S. and Montana Outlook

### Percent Growth in Personal Income 2015

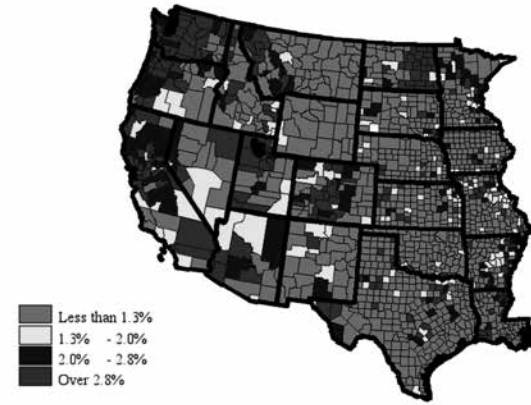


Source: Bureau of Economic Analysis



2018 U.S. and Montana Outlook

### Percent Growth in Personal Income 2016

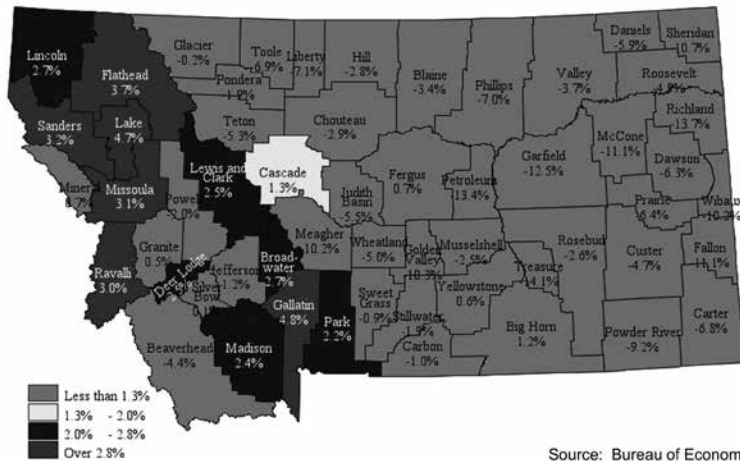


Source: Bureau of Economic Analysis



2018 U.S. and Montana Outlook

### Personal Income Growth in 2016



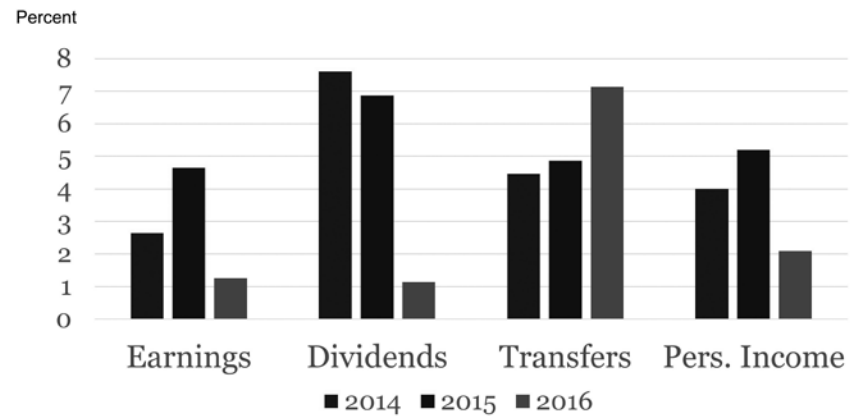
Source: Bureau of Economic Analysis



2018 U.S. and Montana Outlook

### Taxable Sources of Income Were Weak in 2016

Percentage Change in Montana Personal Income, 2014-16



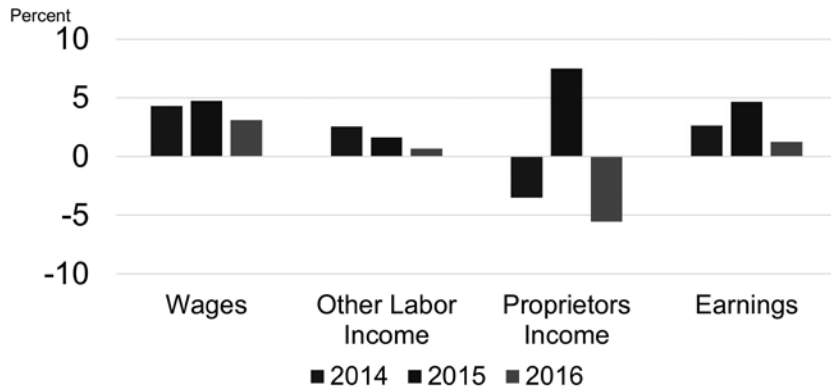
Source: U.S. Bureau of Economic Analysis



2018 U.S. and Montana Outlook

## Business Proprietor Income Declined

Percentage Change in Montana Earnings, 2014-16



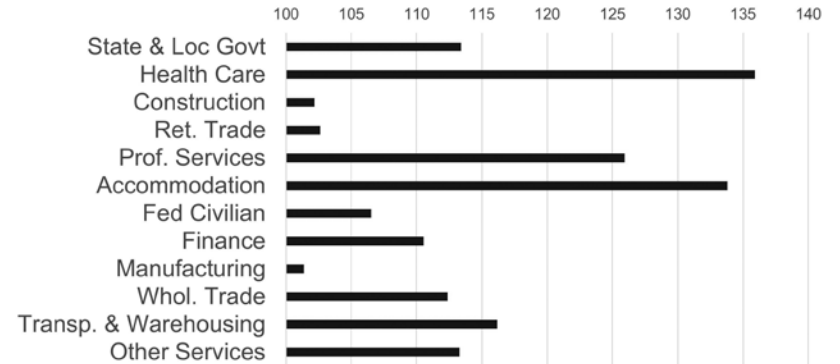
Source: U.S. Bureau of Economic Analysis



2018 U.S. and Montana Outlook

## What Has Grown Since 2007

Inflation Corrected Earnings in 2016 as Percent of 2007



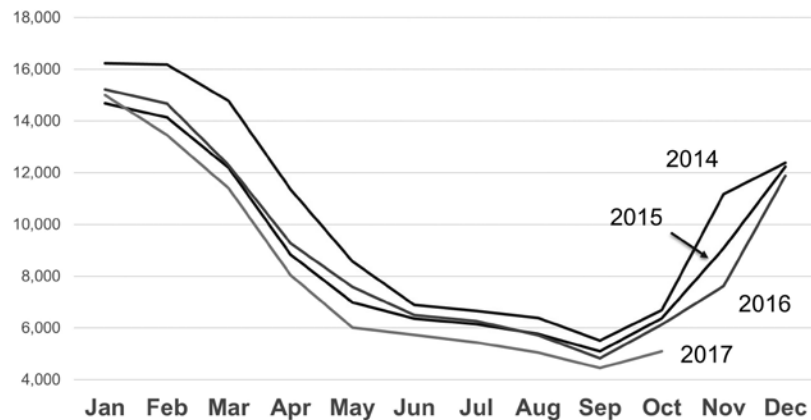
Source: U.S. Bureau of Economic Analysis



2018 U.S. and Montana Outlook

## Montana Labor Market Still Tightening

Unemployment Insurance Claims, 2014-17

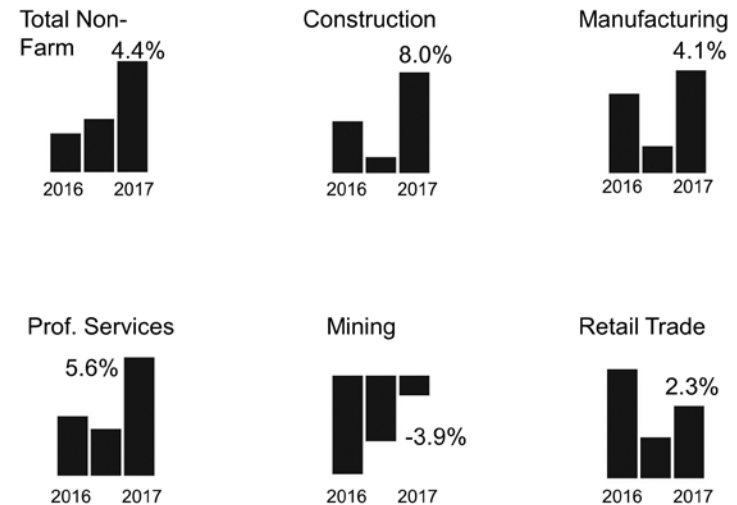


Source: Montana Department of Labor and Industry



2018 U.S. and Montana Outlook

## Percent Growth in Wage and Salary Disbursements by Industry

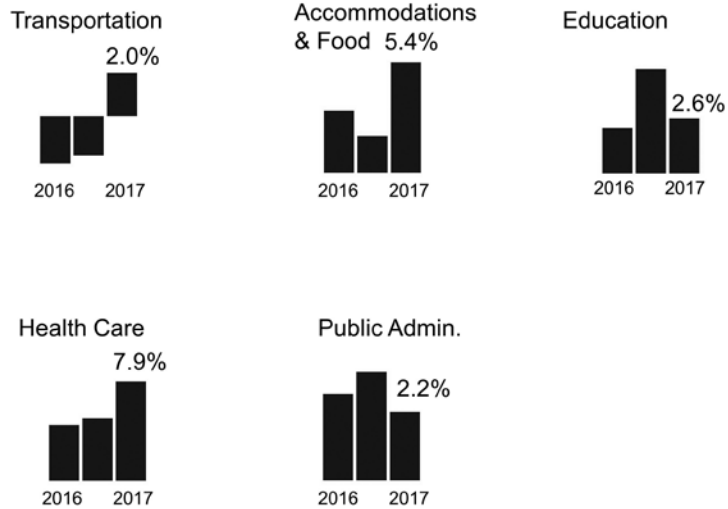


Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages



2018 U.S. and Montana Outlook

### Percent Growth in Wage and Salary Disbursements by Industry



Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages



2018 U.S. and Montana Outlook

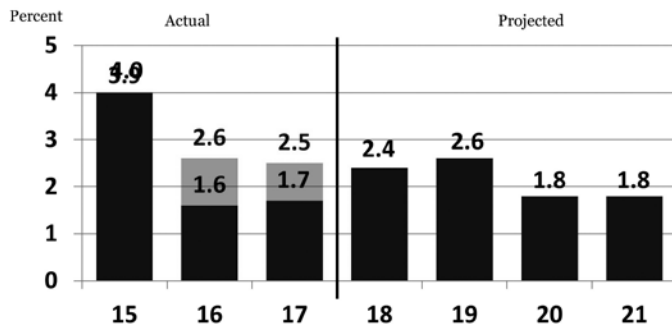
## Montana's Key Industries

- Agriculture producers battered by prices, drought
- Wood products companies encouraged by prices, salvage sales
- Tech expansion, construction healthy in western Montana
- Uncertainties in DC weigh on land use, health care
- Labor shortages impacting construction
- Real estate, financial institutions performing well



2018 U.S. and Montana Outlook

### Growth in Nonfarm Earnings, Montana, 2015-2021



Source: BBER and U.S. Bureau of Economic Analysis



2018 U.S. and Montana Outlook

Questions?



2018 U.S. and Montana Outlook

# Montana Energy Issues

Paul E. Polzin  
Director Emeritus  
Bureau of Business and Economic Research  
University of Montana

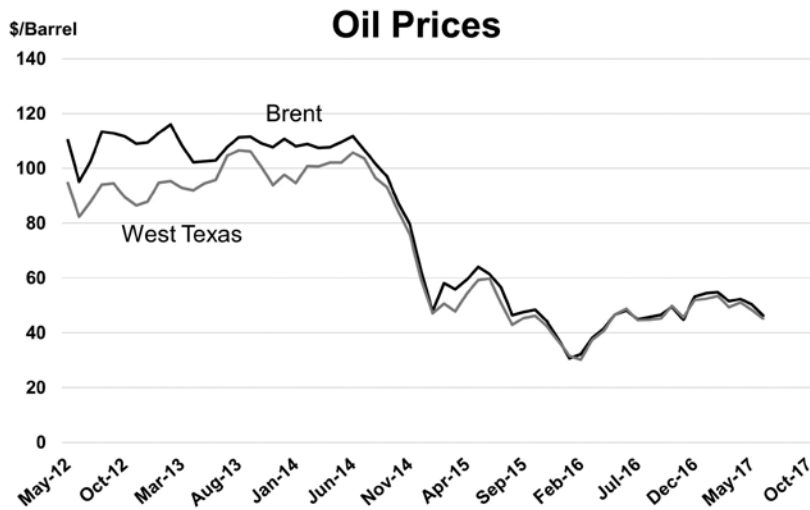


Montana Energy Issues

# What's New in the Bakken?



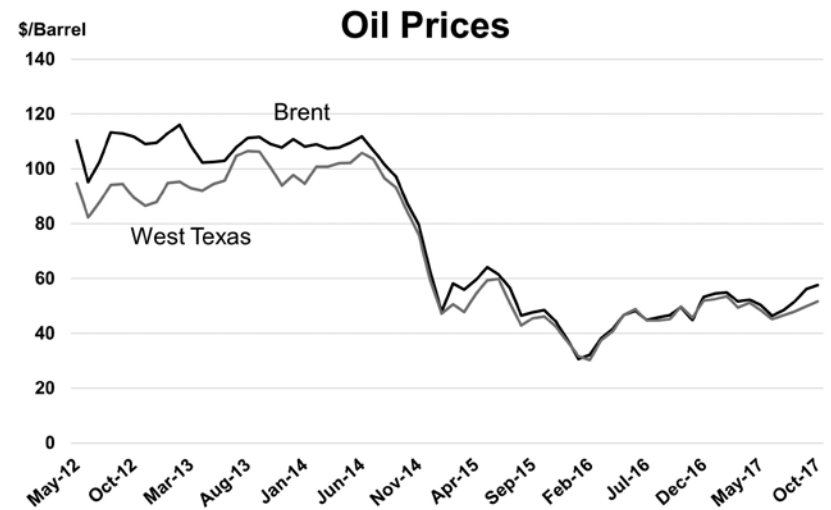
Montana Energy Issues



Source: Federal Reserve Bank of St. Louis



Montana Energy Issues



Source: Federal Reserve Bank of St. Louis



Montana Energy Issues

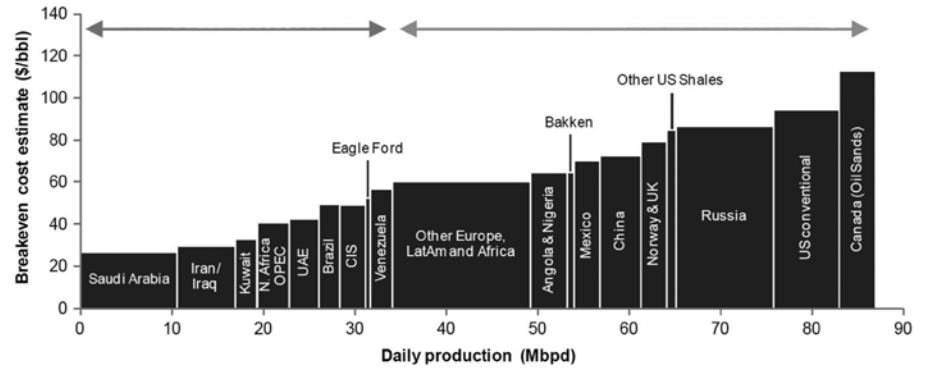
# Future Oil Price Trends

- Synchronized Global Recovery
  - EU now growing
  - Japan Unemployment falling
  - China still uncertain, but improving
- Saudi-Russia supply cut agreement extended
- Mideast oil supply disruptions possible



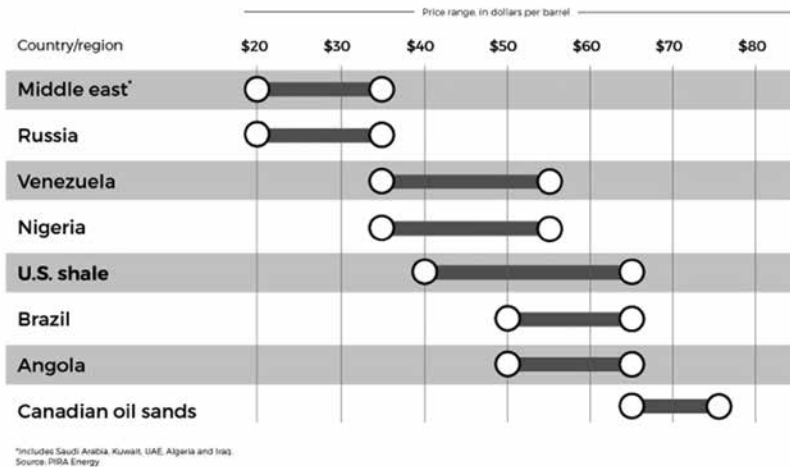
Montana Energy Issues

Global breakeven prices (considering only technical extraction costs) versus production. Source: Alliance Bernstein, October 2014



Montana Energy Issues

Break-Even Oil Prices

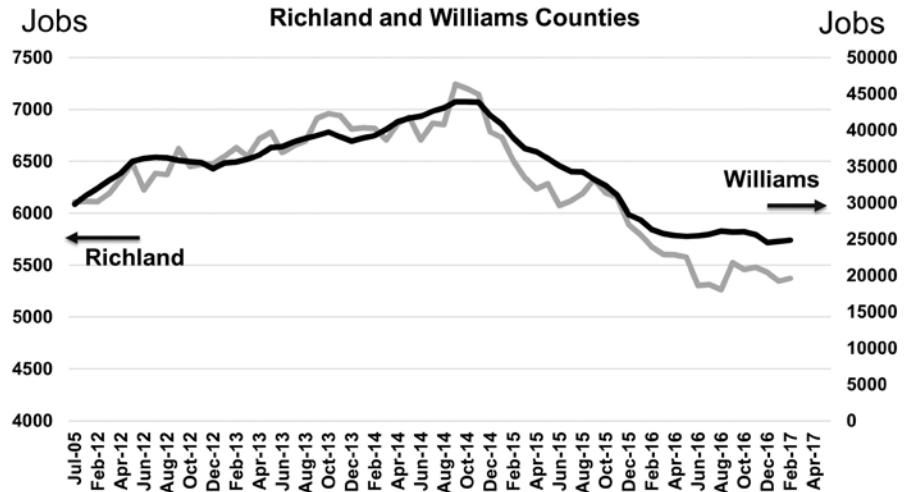


Source: Wall Street Journal



Montana Energy Issues

Nonfarm Jobs  
Richland and Williams Counties



Source: U.S. Bureau of Labor Statistics, QCEW



Montana Energy Issues

Jobs, by Place of Residence			
	2013	2014	2015
Richland Cty, MT			
Total Jobs	6,775	6,747	6,423
Live in Richland	3,953	4,265	4,957
Live Elsewhere	2,822	2,482	1,826
Williams Cty, ND			
Total Jobs	35,395	39,464	36,948
Live in Williams	15,732	17,369	18,507
Live Elsewhere	19,063	22,096	18,441

Source: U.S. Census Bureau



Montana Energy Issues

## The Long Road Ahead For Clean Energy in Montana



Montana Energy Issues

## EXPAND CLEAN ENERGY IN MONTANA

- “It’s time to shift the state’s energy recourses away from greenhouse gas-emitting fossil fuels toward renewable energy.”
- “We Montanans can transform ourselves from being the West’s leader in greenhouse-gas pollution to the first state that commits to 100 percent reliance on clean energy.”
- “Few states are blessed with Montana’s wind and solar resources.”
- **Missoulian 10/17/2017**



Montana Energy Issues

## Wind Generation Potential

Rank	50 Meter		80 Meter		100 Meter	
	State	Capacity (MW)	State	Capacity (MW)	State	Capacity (MW)
1	North Dakota	480,000	Texas	1,901,530	Texas	2,320,792
2	Texas	470,000	Kansas	952,371	<b>Montana</b>	<b>1,012,355</b>
3	Kansas	420,000	<b>Montana</b>	<b>944,004</b>	Kansas	955,239
4	<b>Montana</b>	<b>410,000</b>	Nebraska	917,999	Nebraska	921,075
5	South Dakota	400,000	South Dakota	882,412	South Dakota	890,626

Source: American Wind Energy Association and U.S. Renewable Energy Laboratory



Montana Energy Issues



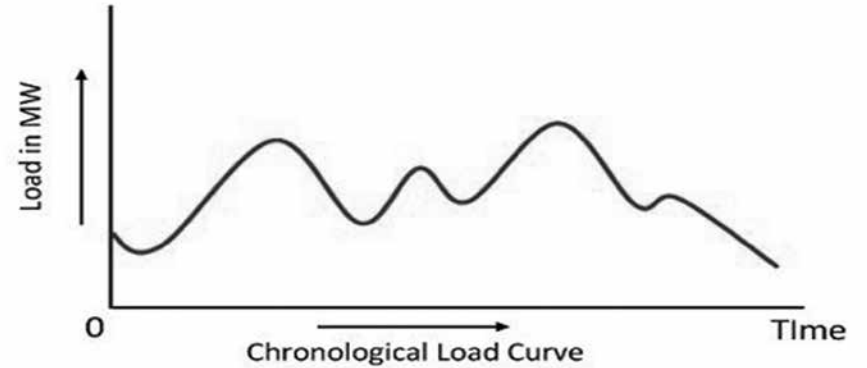
# Electric Generation in Montana 2015

	Capacity		Generation	
	MW	Percent	MHW	Percent
Total	6,367	100	29,302,000	100
Coal Generation	2,488	39.1	16,013,000	54.6
Hydro Generation	2,628	41.3	9,887,000	33.7
Gas Generation	456	7.2	599,206	2.0
Wind Generation	662	10.4	1,964,726	6.7
All Other Generation	133	2.1	838,0687	2.9

Source: U.S. Energy Information Administration

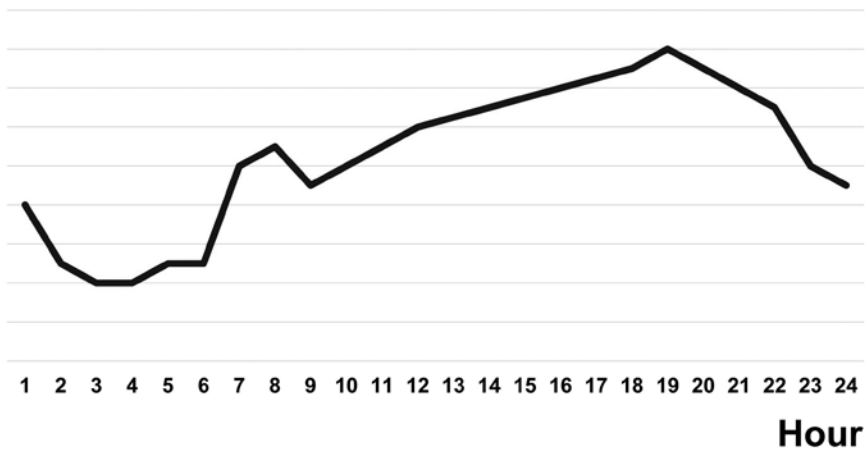


Montana Energy Issues



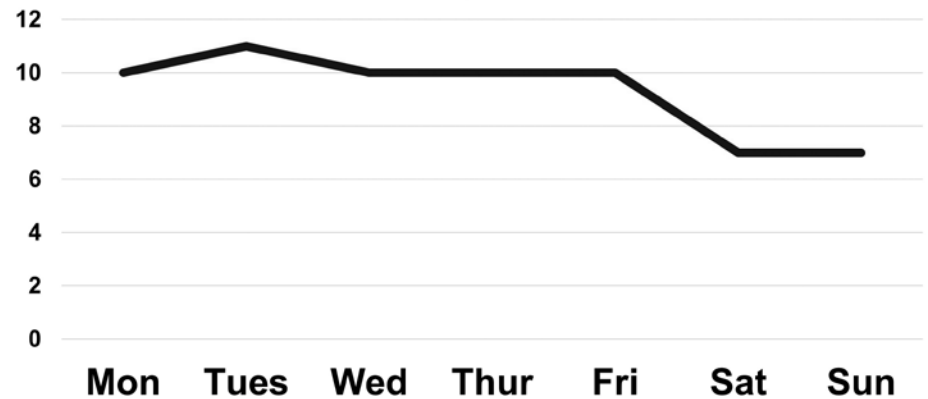
Montana Energy Issues

## Daily Load

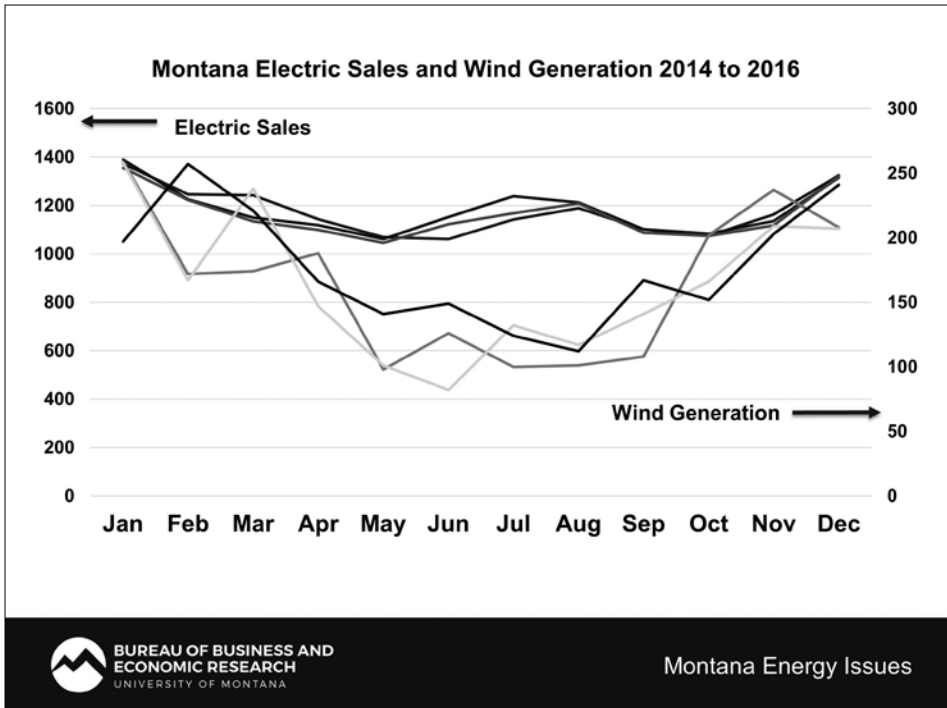
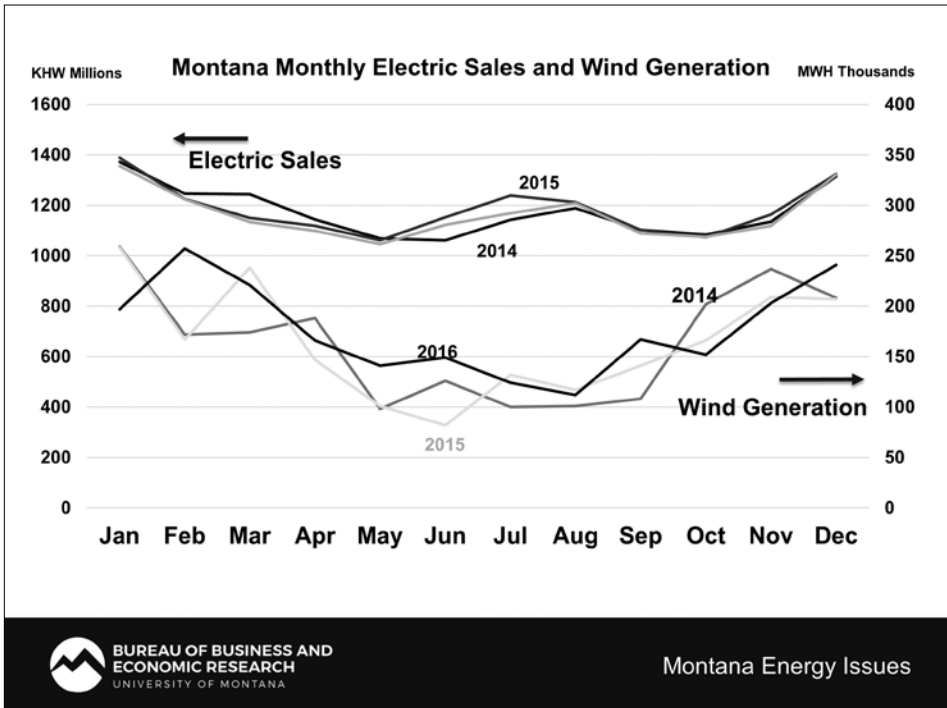
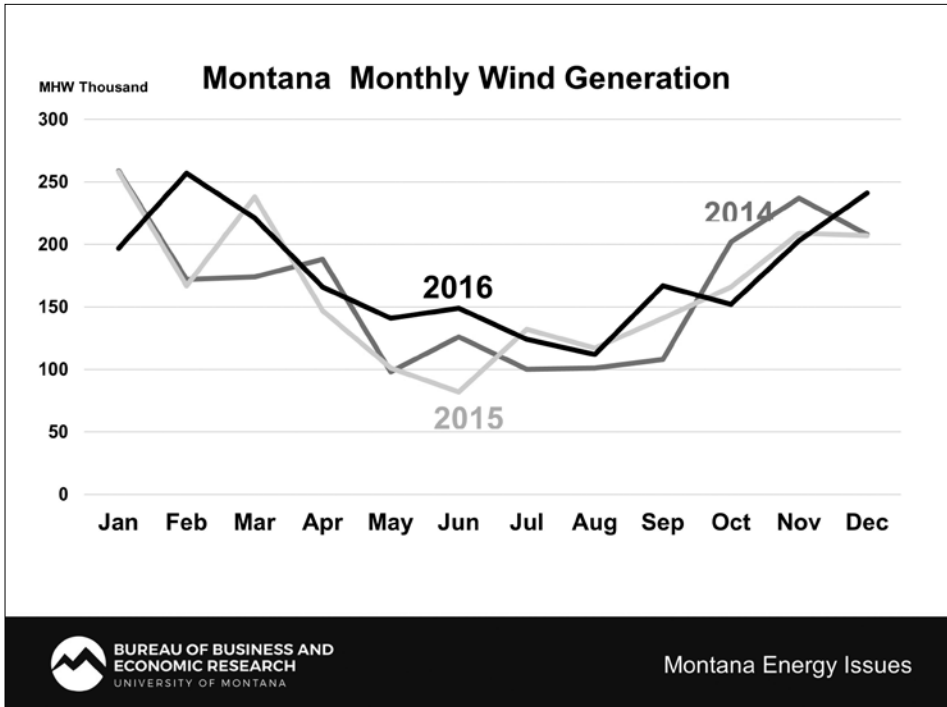
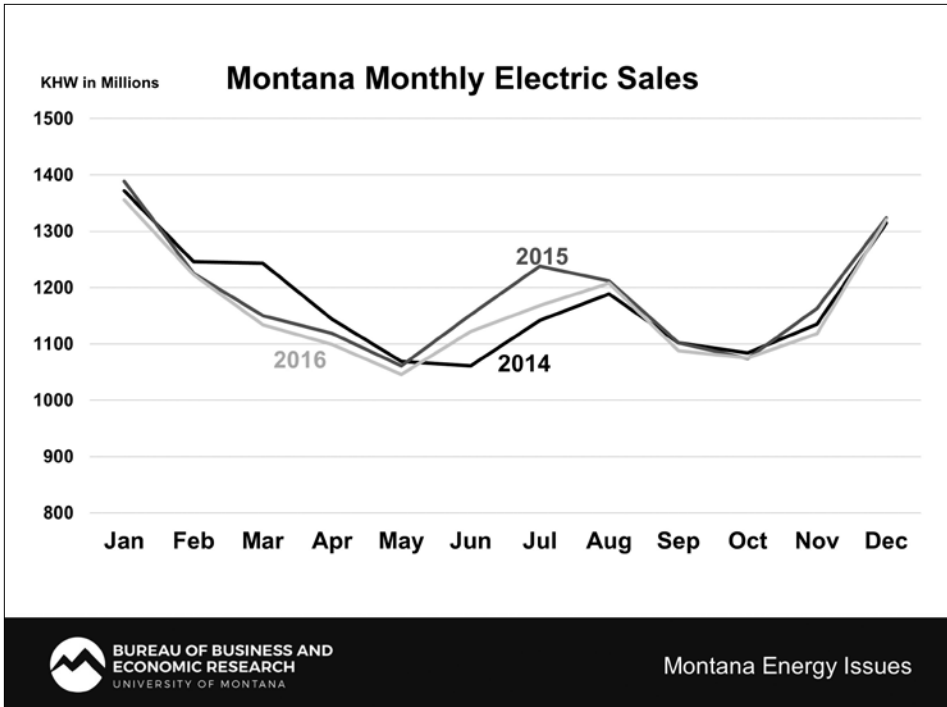


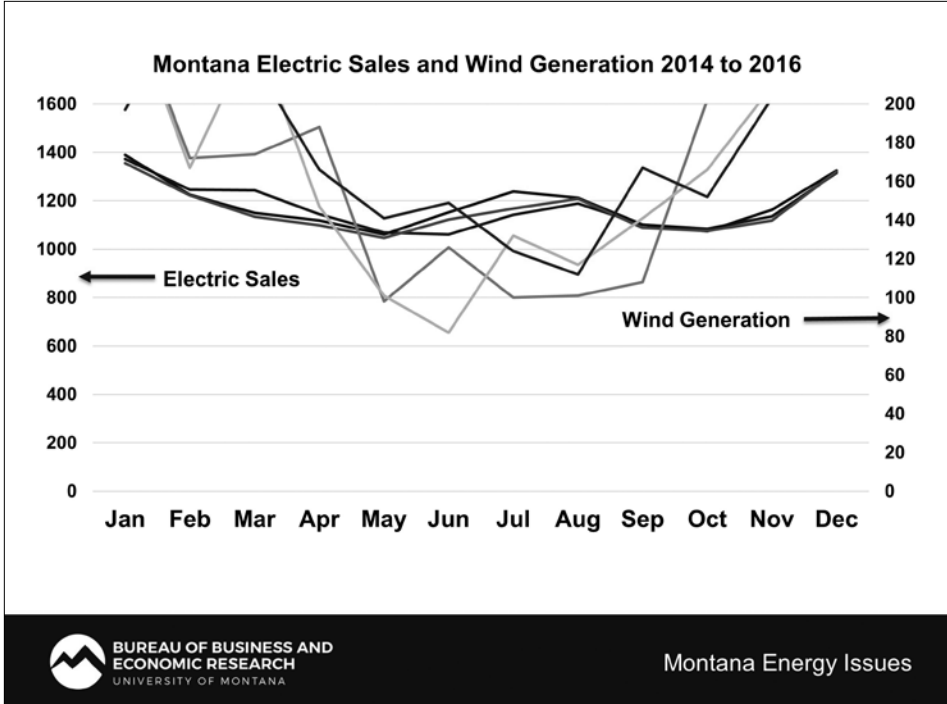
Montana Energy Issues

## Weekly Load



Montana Energy Issues



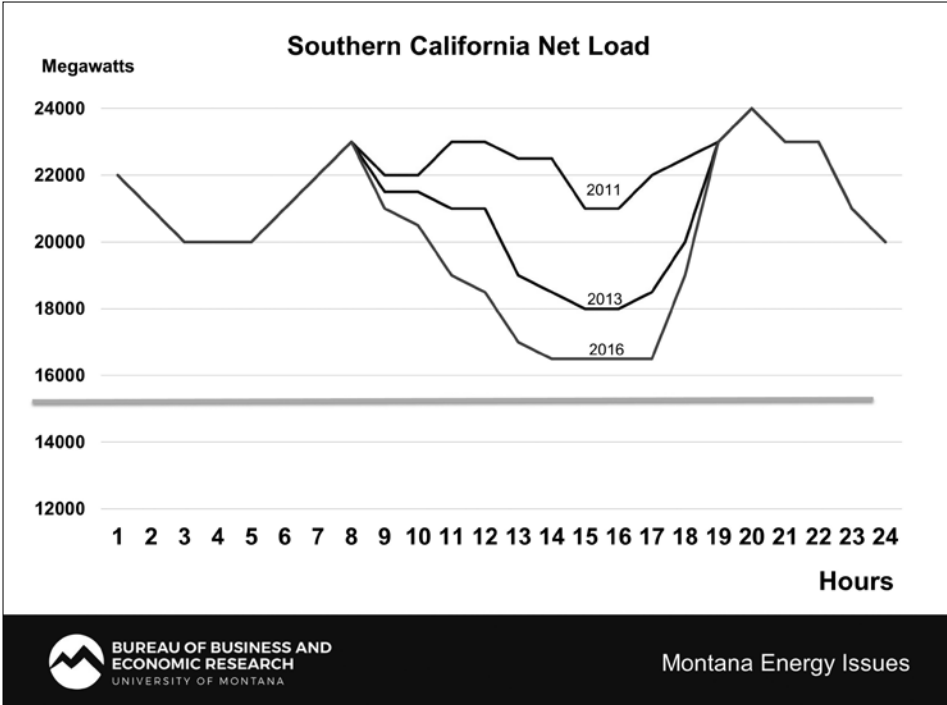
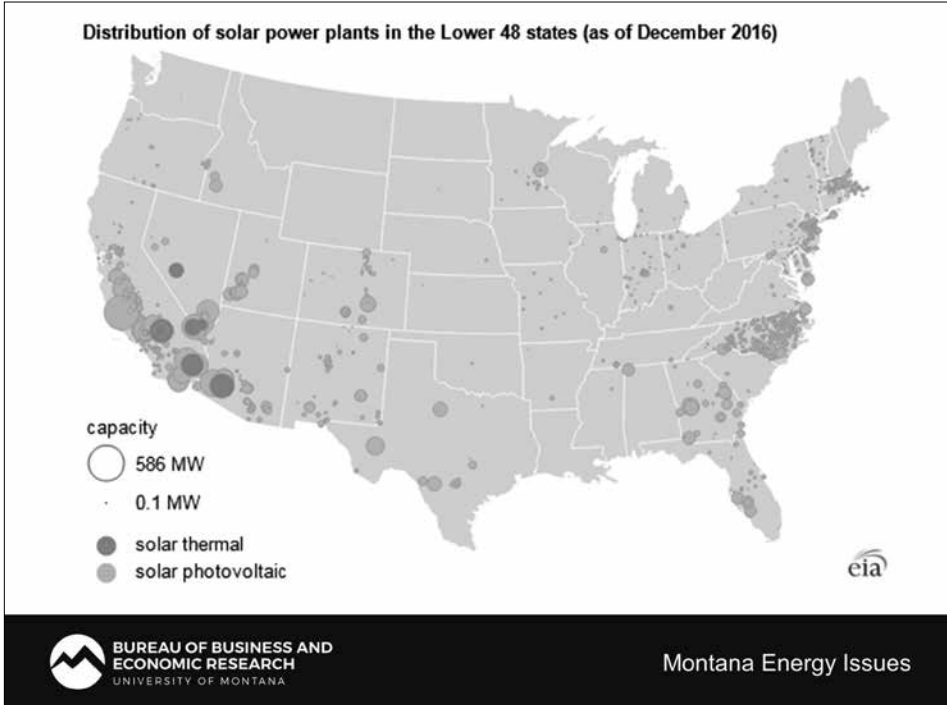


## Types of Solar Generation

- Utility-scale solar generation. Large solar generation facilities that sell electricity to wholesale utility buyers.
- Distributed solar generation. Relatively small (e.g. rooftop, residential) electric generation serving end-use consumers. May sell excess generation back to utility.

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UNIVERSITY OF MONTANA

Montana Energy Issues



# 2018 Travel & Recreation

Norma P. Nickerson, Director  
 Jeremy Sage, Economist and Associate Director  
 Institute for Tourism and Recreation Research  
 W.A. Franke College of Forestry and Conservation  
 University of Montana

## Aberrations or trends?

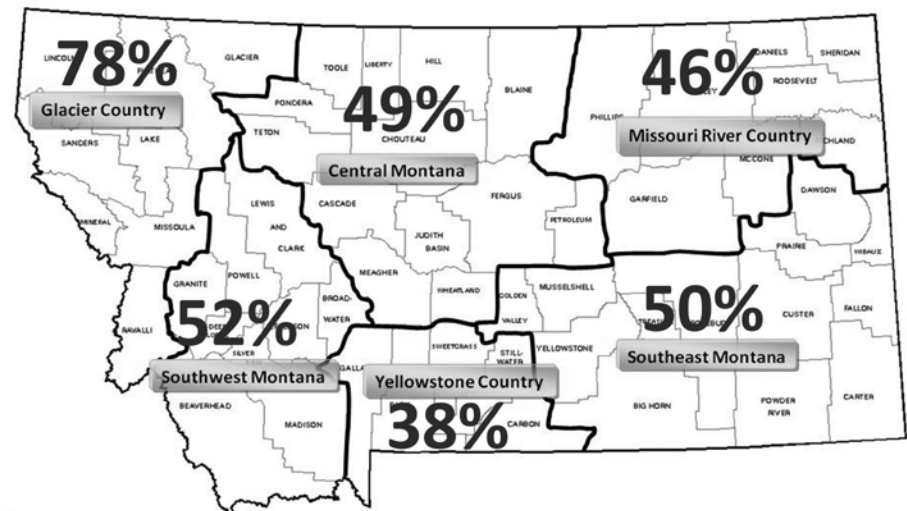
## 2017 Fire & Smoke impact

Wildfire smoke update for Monday, Sept. 18, 2017: The smoke impacts have been caused by the fires smoldering and sending smoke into nearby drainages. Air quality on Monday is UNHEALTHY in Clearwater and UNHEALTHY FOR SENSITIVE GROUPS in Libby, Florence, Seeley Lake, and Trout Creek...

## Wild Fire Impact on Visitors

- 7.1% shortened their trip due to fires.
- 6.9% canceled additional trips.
- 8.6% of trips to Montana were cancelled due to the fire/smoke.

## Percent of tourism businesses affected by fires and smoke in 2017.



## Wild Fire Impact on Residents

- 76% of Montanan's frequently experienced a decrease in air quality.
- 66% said outdoor recreation activities they do near home were affected.
- 37% said they changed their travels in Montana.

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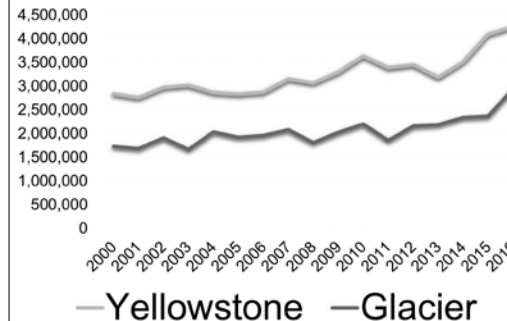
MT Travel and Recreation

## Aberration or trend?

More than 1 Million  
Monthly Visitors for the  
First Time

As visitation continues to skyrocket, monthly  
attendance records fall  
BY TRISTAN SCOTT // AUG 7, 2017

Annual Park Recreation Visits  
(2000-2016)



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MT Travel and Recreation

## Definitely an Aberration



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MT Travel and Recreation

## Eclipse impacts

- Idaho Falls hotel's Average Daily Rate of \$368 was the highest of any US city in eclipse path.
- The impact was enough to significantly lift the entire U.S. hotel performance for Sunday, August 20<sup>th</sup>.
- Wyoming gained \$63.4 million in nonresident visitor spending within 5 days of the eclipse.
- It took 2 hours to travel 4 miles on I-90 south of Dillon, MT after the eclipse.



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MT Travel and Recreation

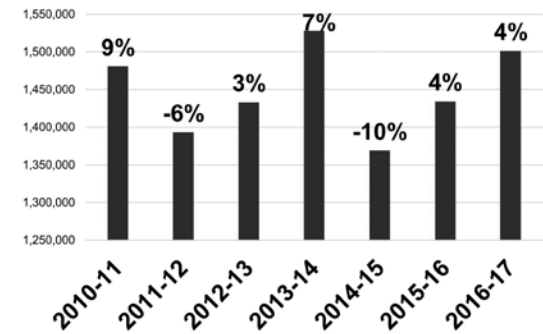
# Aberration or trend?

Public land changes – monuments, park fees...



# Aberration or trend?

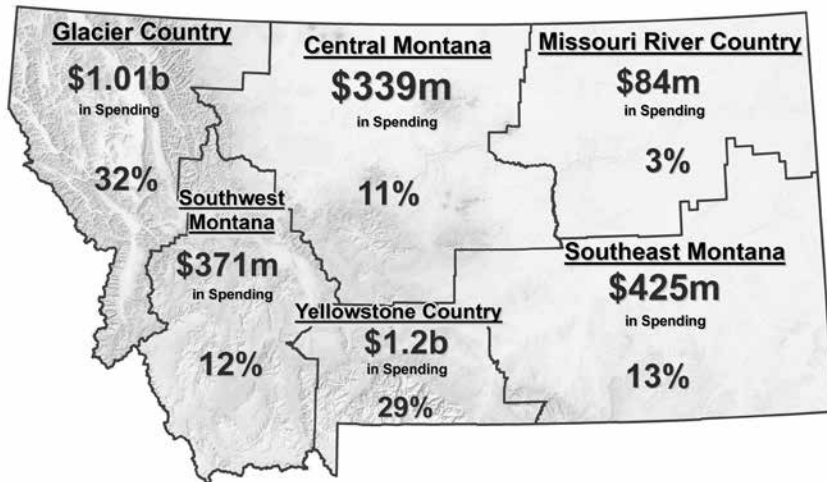
## Ski Area Visits



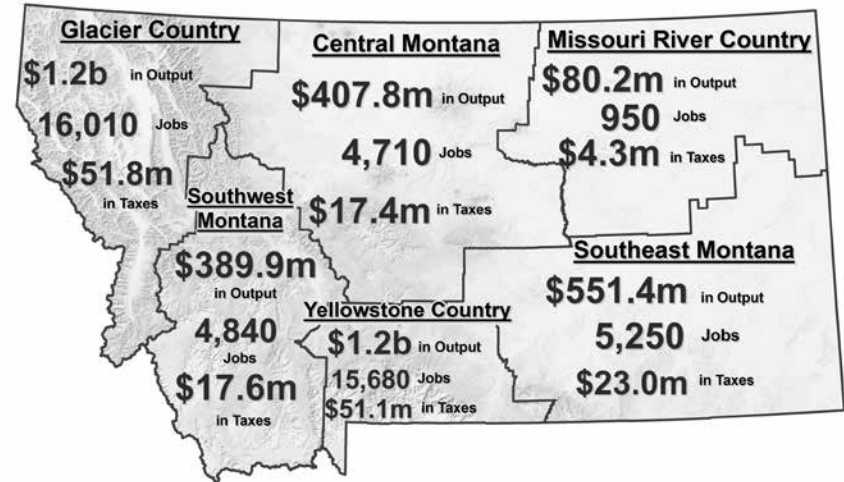
### 2016-17 Skier numbers

Whitefish Mt. Resort – best season on record  
Big Sky & Bridger – last two seasons best ever

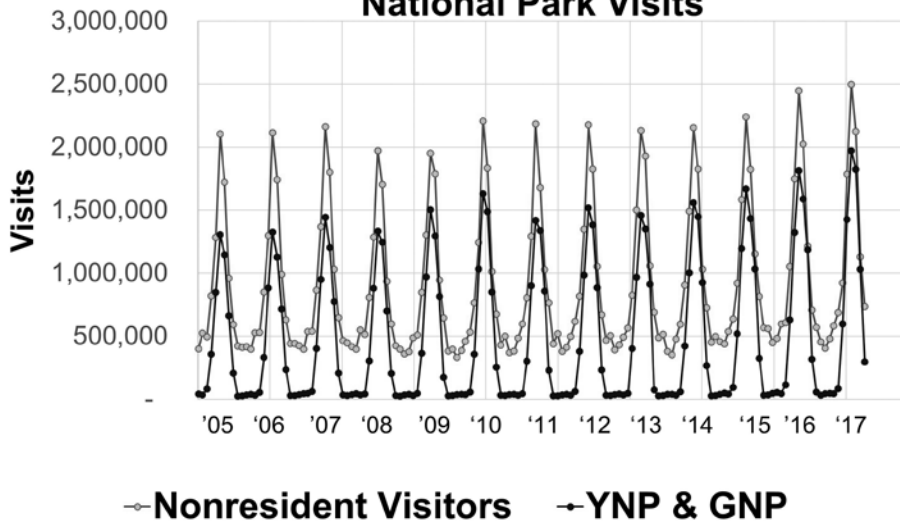
## Nonresident Visitor Spending



## Nonresident Visitor Spending - Outputs



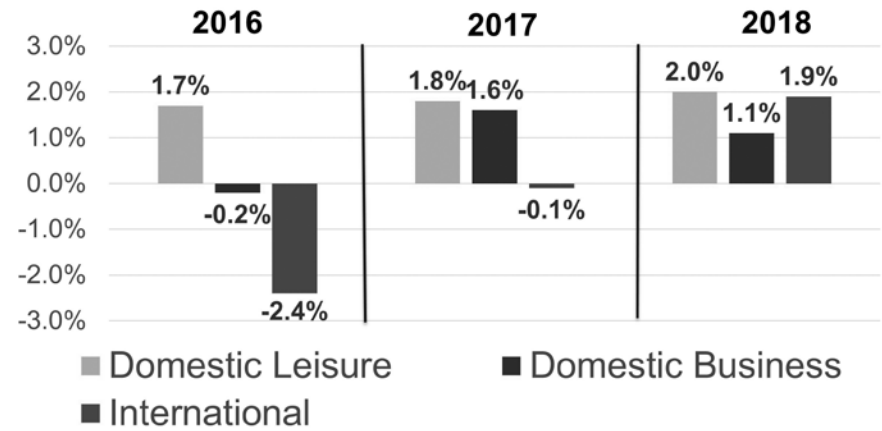
### Relationship: Nonresident Visitors to National Park Visits



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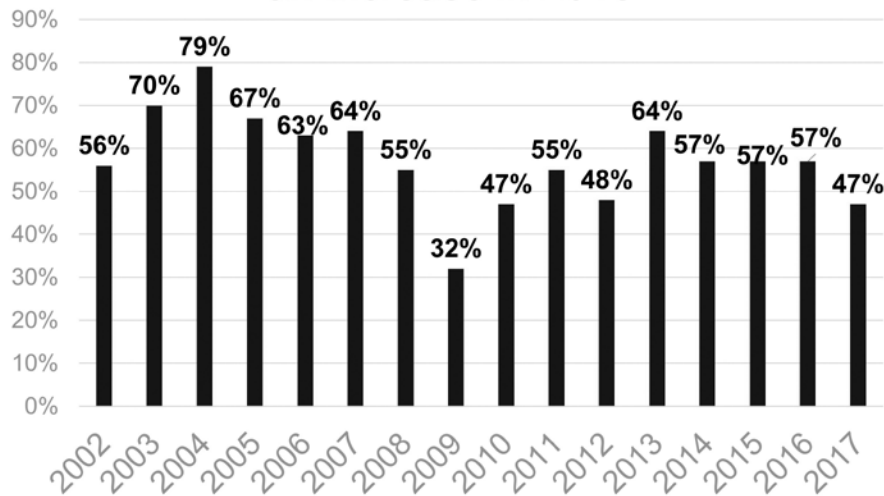
### National Travel Outlook



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### % of Tourism Businesses who Expect an Increase in 2018



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**Thank you!**  
 Enjoy your travels, wherever they may take you!

[www.itrr.umt.edu](http://www.itrr.umt.edu)

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MT Travel and Recreation

# 2018 Montana Agricultural Outlook

George Haynes  
Kate Binzen Fuller

Department of Agricultural Economic & Economics  
MSU Extension

Major Data Source: National Agricultural Statistics Service  
Montana Field Office (Eric Sommer, Director)



# Range Fires



KRTV Photograph, 2017



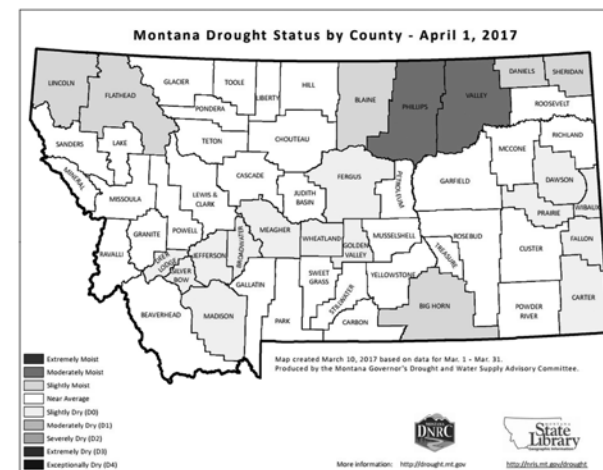
# Drought



Billings Gazette, 2017

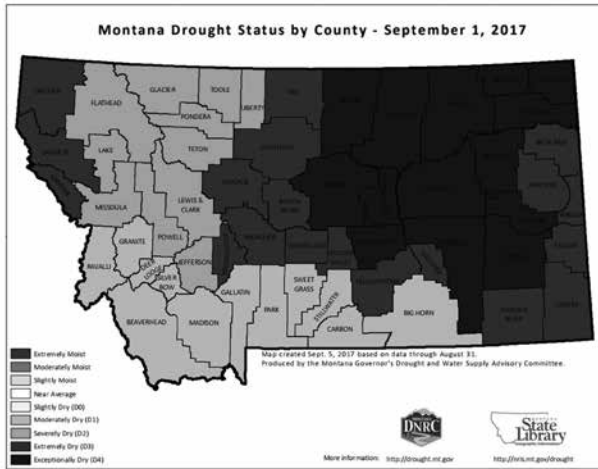


# Uncertainty – April, 2017

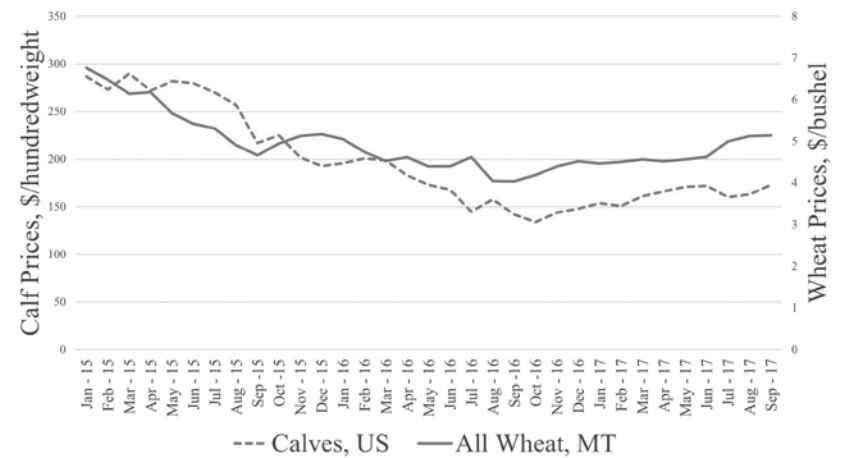




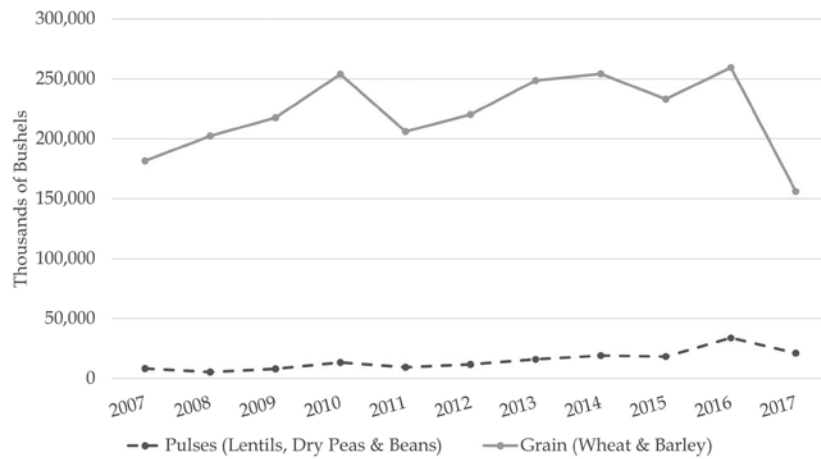
# Uncertainty – September, 2017



# Prices: Some Improvement



# Production: Tough Year



# 2017/18 Overview

- Cattle
  - Improving cattle prices
    - US beef production increased by 5% in 2017
      - Anticipated to increase by 3% in 2018
    - US beef exports – increase 12% in 2017 - Japan
      - Forecasted to increase 4% in 2018
    - US beef imports – decreased slightly in 2017
      - Forecasted to increase 2% in 2018
      - (+) Australia and Mexico and (-) Brazil and Uruguay

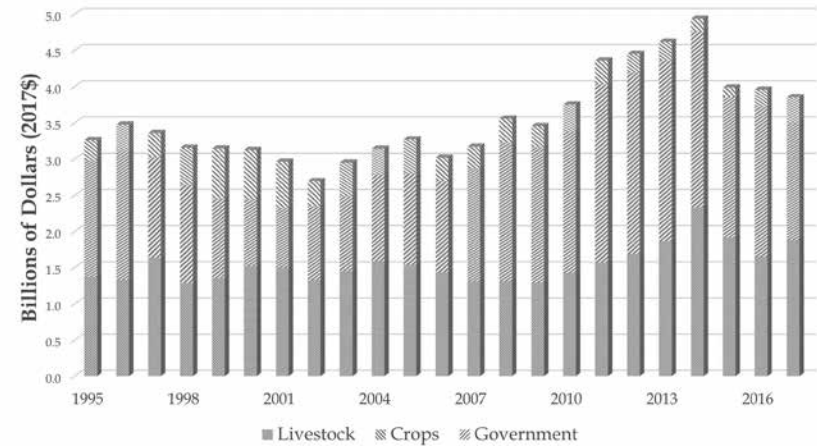
Exports – Japan (+) and Imports – Australia/Mexico (+) and Brazil/Uruguay (-)

# 2017/18 Overview

## Crops

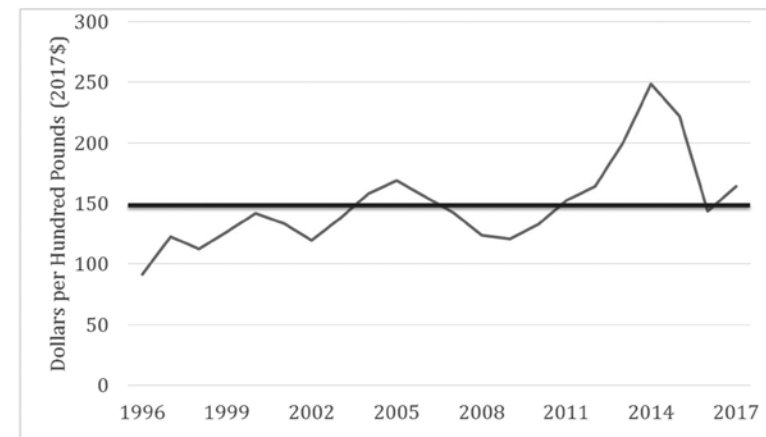
- Improving grain prices
  - Montana wheat production down 40% in 2016/17
    - US wheat production down 25%
  - US wheat exports down 5%
    - Competition - Russia with tariff discounts
  - US wheat imports up 27%
- Pulse acreage continues to increase, "humbling" production

# Cash Receipts (1995 - 2017f)

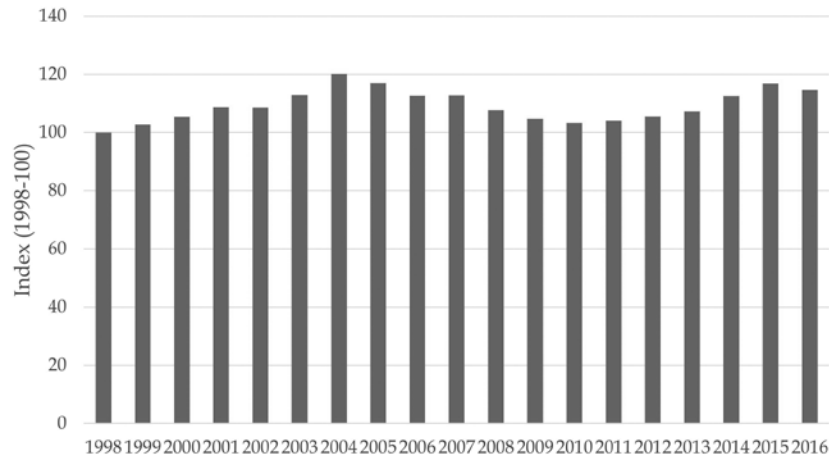


# CATTLE

# U.S. Average Calf Prices (2017\$)

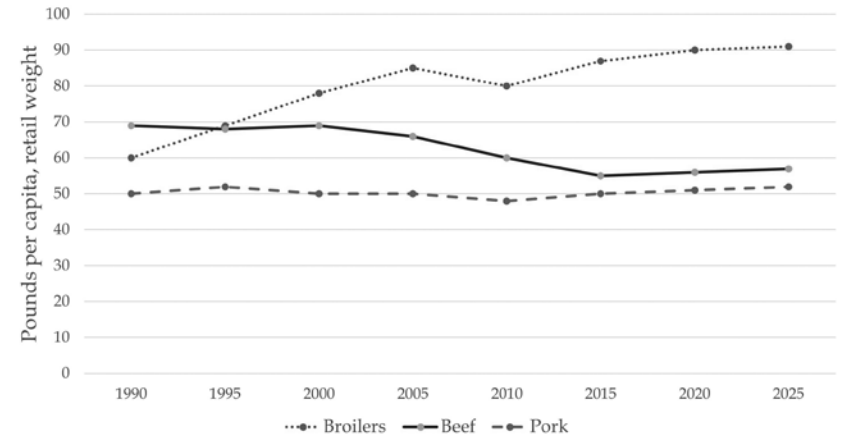


## Stable U.S Demand for Beef



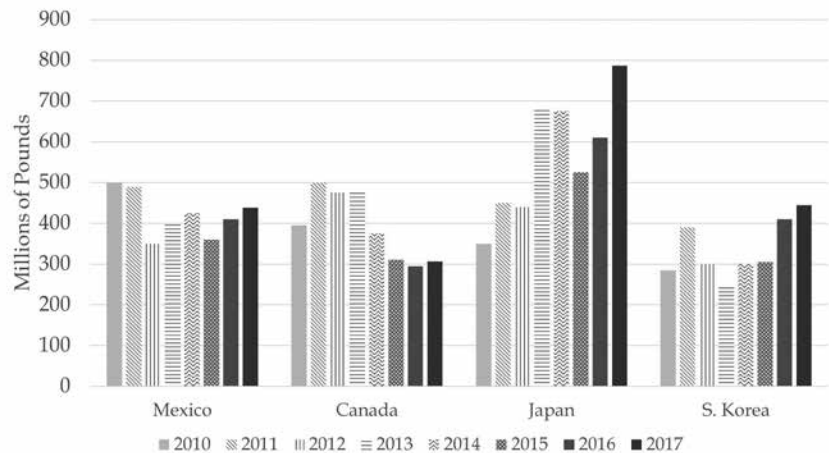
Source: <http://agebb.missouri.edu/mkt/demand/bull2c.htm>

## Market Share (1990-2025f) U.S. per capita meat consumption



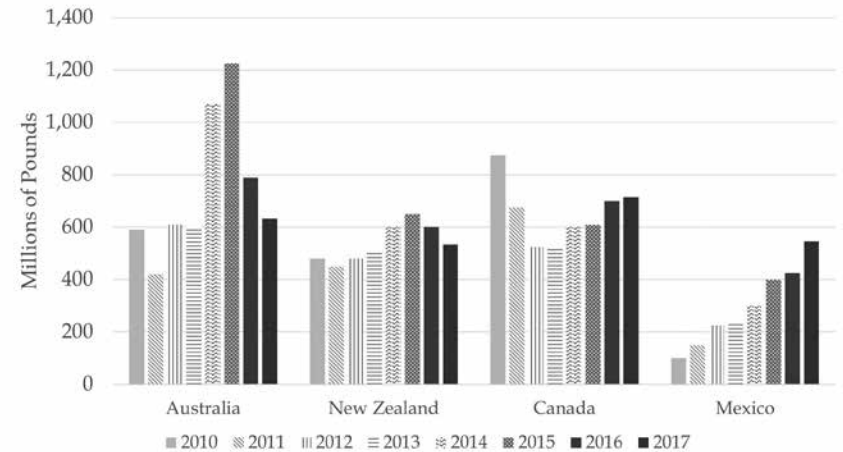
USDA Long Run Projections

## Beef Exports



USDA, FAS

## Beef Imports



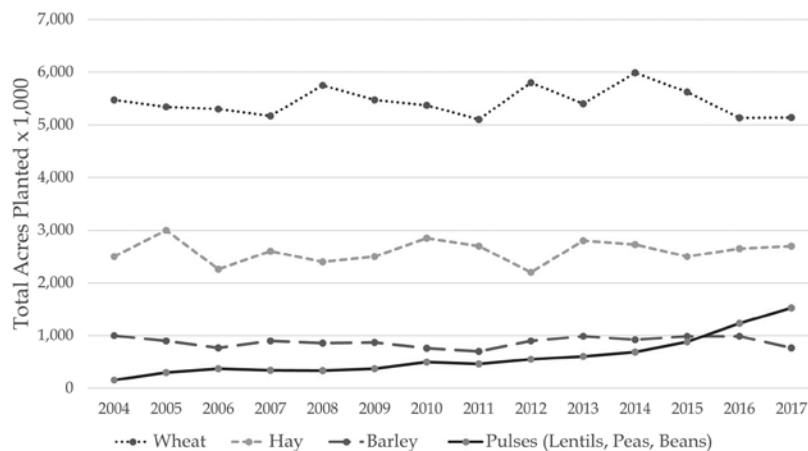
## 2017 Futures Prices

(\$/hundred pounds, no basis adjustments - 11/22/17)

Location	March	April	August	October
Chicago Mercantile Exchange				
Feeder Cattle	151	151	152	148
Live Cattle	126	126	115	114

## CROPS (GRAIN, HAY, PULSES, AND ORGANIC CROPS)

## Montana Major Crop Acreage



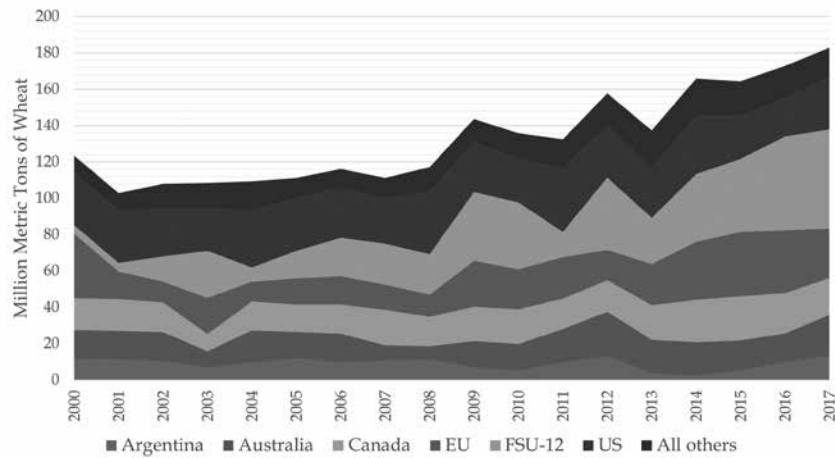
Canola - 115,000 acres in 2017 (increase of 2.5 fold increase from 2016)

## Global Wheat Production Shares

Country	2015/2016	shares	2016/2017	shares
	mmt	%	mmt	%
Australia	24.5	3.3	33.5	4.4
Canada	27.6	3.8	31.7	4.2
China	130.2	17.7	128.9	17.1
EU-27	160.0	21.8	145.5	19.3
India	86.5	11.8	87.0	11.5
FSU-12	118.2	16.1	130.5	17.3
U.S.	56.1	7.6	62.8	8.3
Other	132.4	18.0	134.1	17.8
<b>Total</b>	<b>735.5</b>	<b>100.0</b>	<b>753.9</b>	<b>100.0</b>

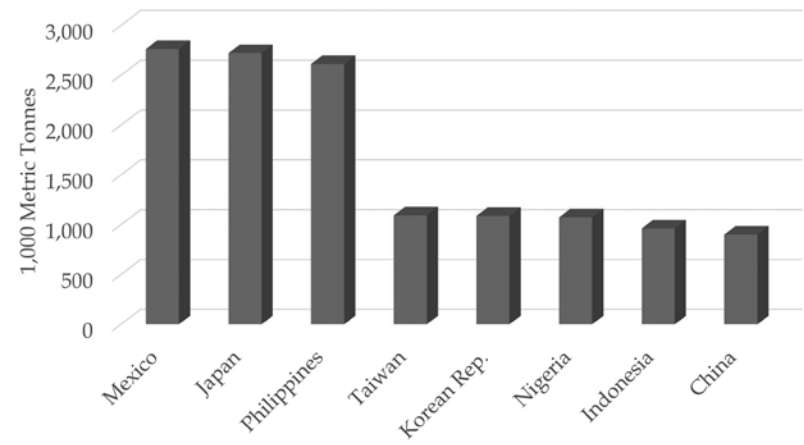
Source, WASDE-571, 2017

## World Wheat Exports (2000 - 2017)



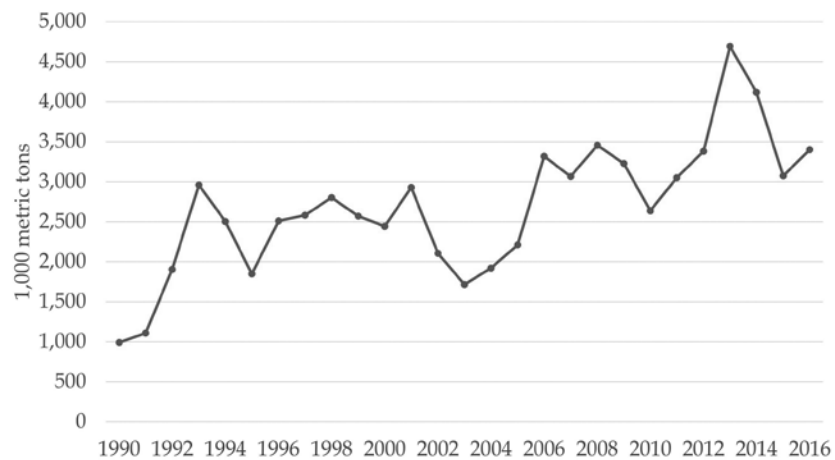
USDA, WASDE 2000 - 2017, pages 16 and 18

## U.S. Wheat Exports (2016)



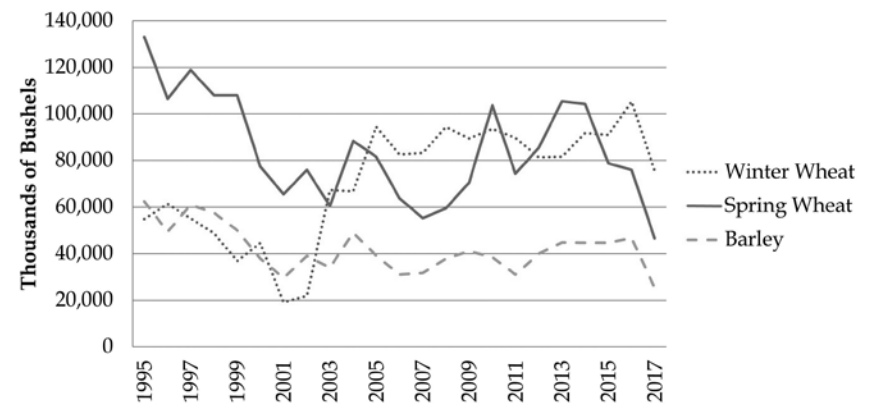
Source: <http://usda.mannlib.cornell.edu/usda/current/WHS/WHS-12-13-2016.pdf>

## U.S. Wheat Imports



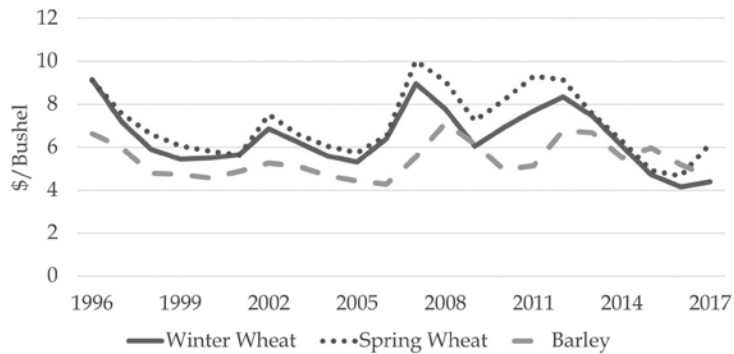
Source: USDA; almost all Canadian imports; imports - 16% of exports

## Montana Grain Production



# Montana Grain Prices

(2017\$)

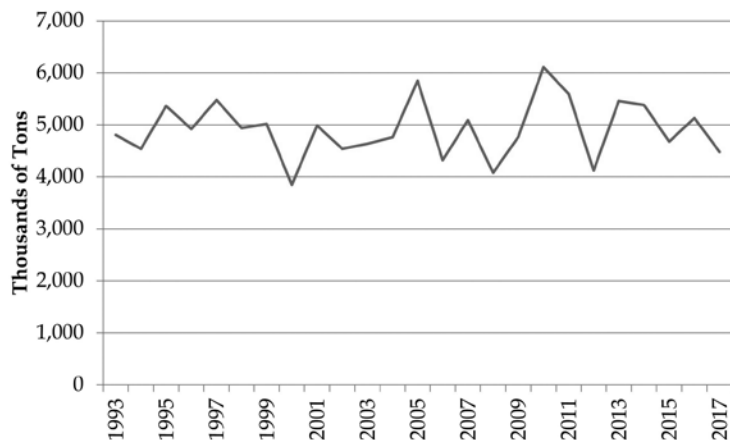


# 2017 Futures Prices

(\$/bu, no basis adjustment - 12/06/17)

Location	May	July	Sept	Dec
<b>Minneapolis Grain Exchange</b>				
Hard Red Spring Wheat	6.19	6.25	6.24	6.35
<b>Kansas City Board of Trade</b>				
Hard Red Winter Wheat	4.35	4.52	4.69	4.92
<b>Chicago Board of Trade</b>				
Corn	3.60	3.69	3.76	3.85

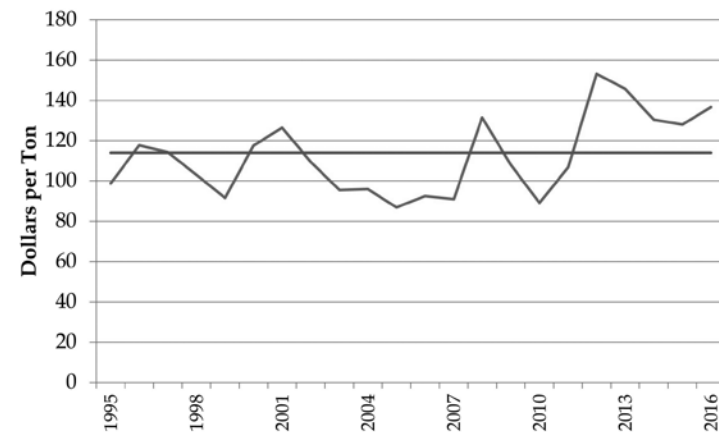
# Montana Hay Production



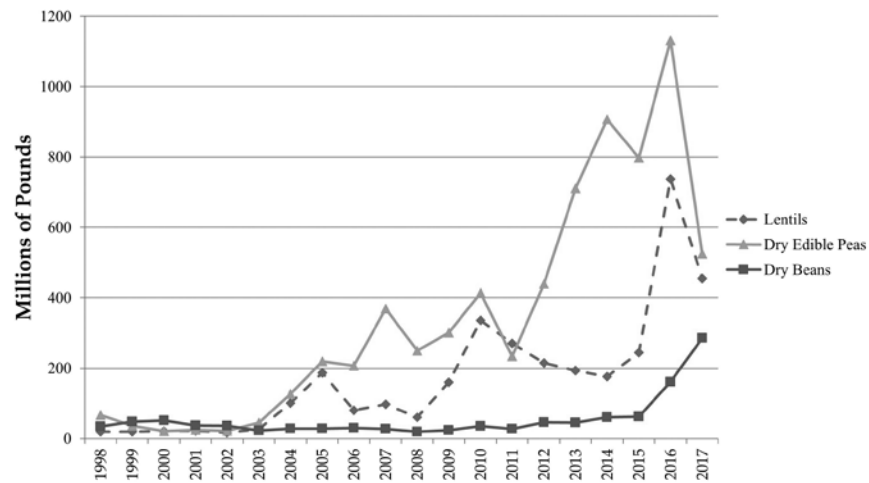
Production down 13%

# Montana Hay Prices

(\$2017)

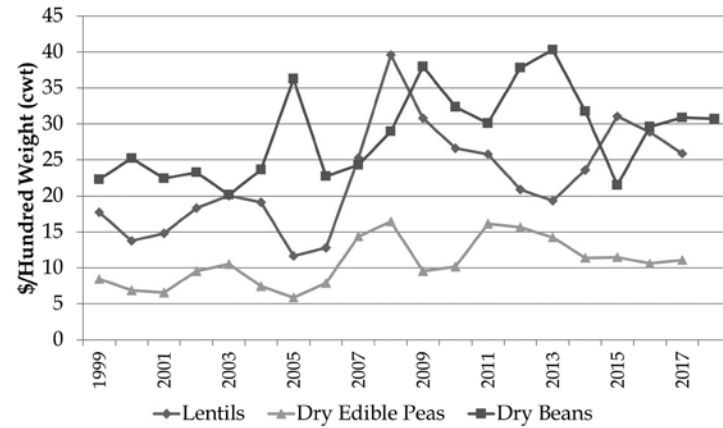


# Montana Pulse Production



Average yield declines - lentils 52%; dry peas = 46%; dry beans = 35%

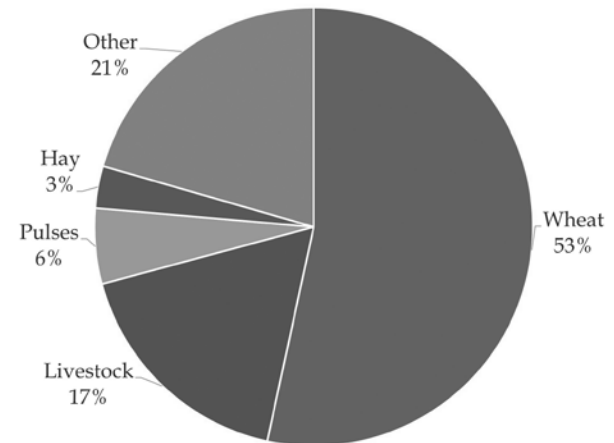
# Montana Pulse Prices (\$2017)



# Montana Organic Production

- #1 Organic wheat producer in US
  - \$28.4 million gross sales (27% of US organic wheat sales)
- #1 Organic pulse producer
  - \$5.4 million revenue (55% of US organic pulse sales)
- 5% of certified organic acres

# Organic Revenue Shares



## 2018 Forecast

- Livestock:
  - Herd expansion continues
  - Stable to slightly higher prices
- Grains/Pulses:
  - World wheat stocks are high
  - Prices below historical averages
  - Continued growth in pulse and oilseed crop acreage

## Questions?

George Haynes, Ph.D.  
[haynes@montana.edu](mailto:haynes@montana.edu)

Kate Binzen Fuller, Ph.D.  
[kate.fuller@montana.edu](mailto:kate.fuller@montana.edu)



# Does Higher Education Improve Health?

Plus recent data on health care spending in Montana

Bryce Ward, Associate Director  
Bureau of Bus. & Econ. Research



Health Care

**Note: The slides in this packet are intended as a handout that summarizes the material covered. They will not match the presentation.**



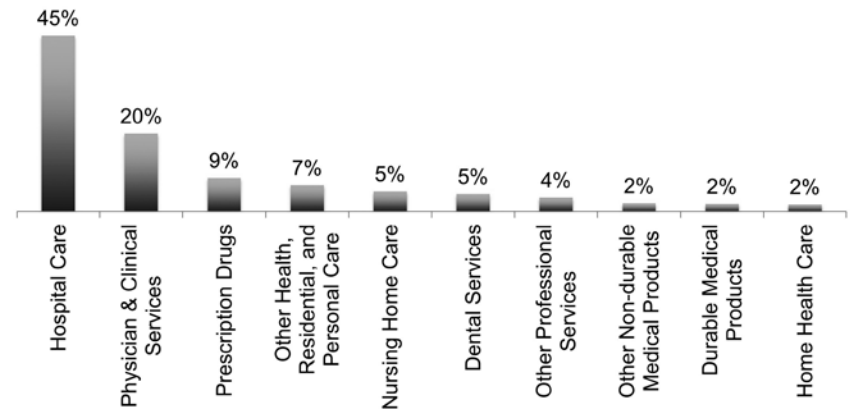
Health Care

***In 2014, Montanans spent \$8.23 billion on personal health care (e.g., doctor's visits, hospital stays, prescription drugs, dental services, home health, nursing homes). This amounts to \$8,221 per person.***



Health Care

**Nearly 75% of personal health care spending in Montana is spent on hospital care, physician and clinical services, and prescription drugs.**

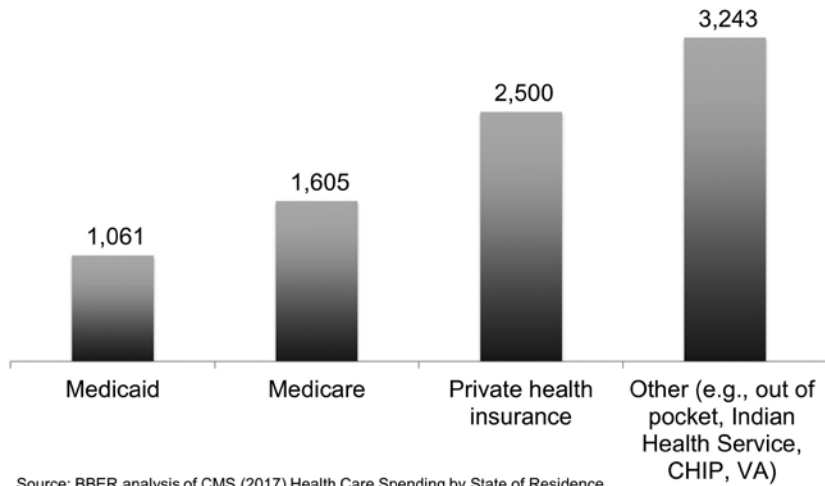


Source: BBER analysis of CMS (2017) Health Care Spending by State of Residence



Health Care

**Health care spending in Montana by payer, 2014 (\$millions)**



Source: BBER analysis of CMS (2017) Health Care Spending by State of Residence

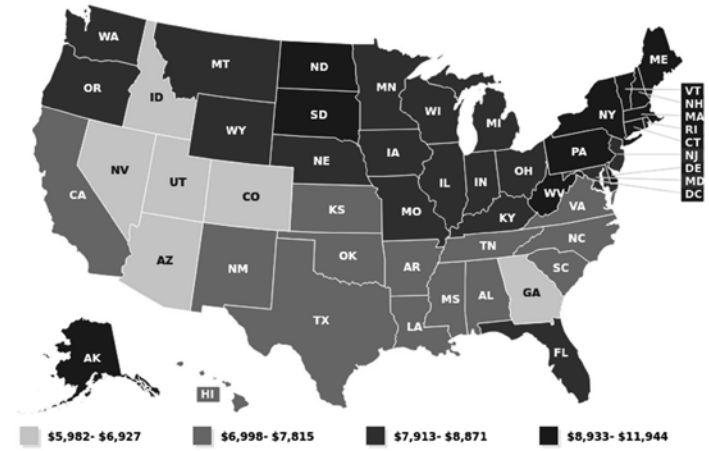


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Health Care

**Health care spending per person in Montana slightly exceeds the US level.**

Health Care Expenditures per Capita by State of Residence: Health Spending per Capita, 2014



SOURCE: Kaiser Family Foundation's State Health Facts.

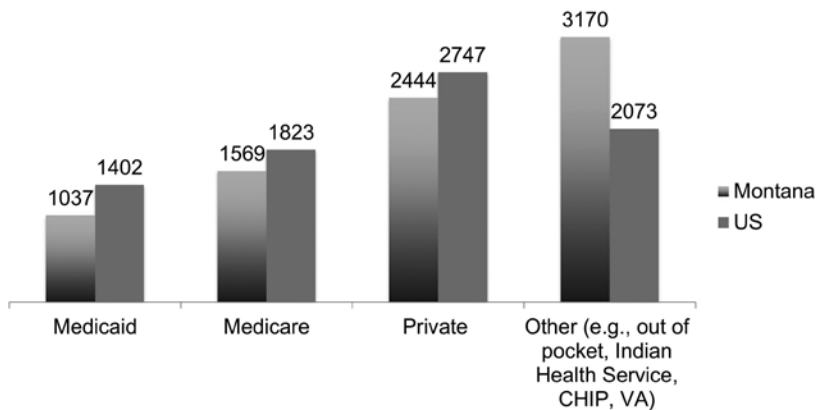


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Health Care

**Montana's higher than average health care spending per capita reflects higher than average spending in the other category.**

Health care spending per capita by payer 2014, MT v. US



Source: BBER analysis of CMS (2017) Health Care Spending by State of Residence

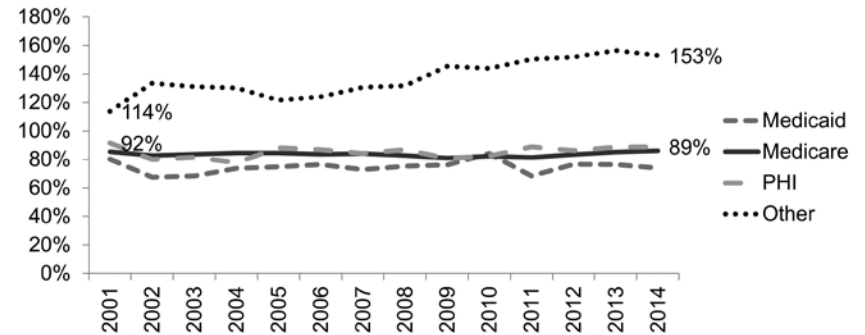


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Health Care

**Montana's faster than average growth is also concentrated in the "other" payer category.**

Health care spending per capita by payer as % of US, 2001-2014



Source: BBER analysis of CMS (2017) Health Care Spending by State of Residence

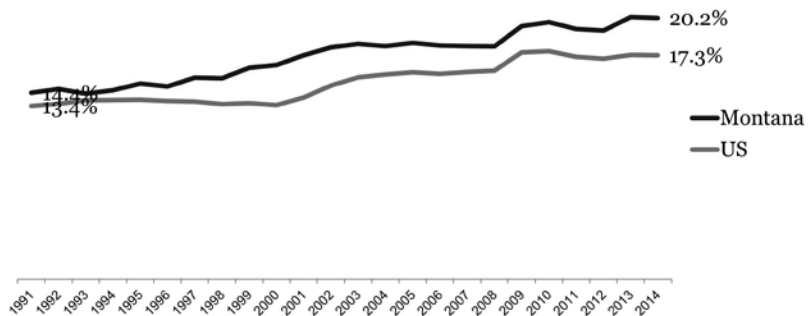


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Health Care

**Health care spending in Montana is high relative to income and has been growing faster the nation.**

**Personal health care spending as percent of personal income, 1991-2014**



Source: BBER analysis of CMS (2017) Health Care Spending by State of Residence and BEA Personal Income data.



Health Care

***Is there a link between higher education, health, and health care?***

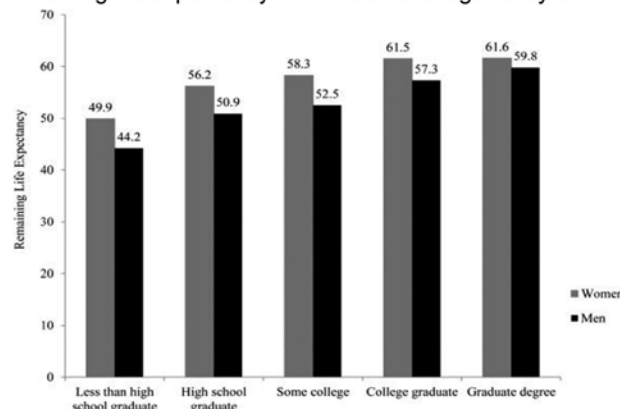


Health Care

***More educated individuals live longer healthier lives.***

**Relative to high school graduates, people with a college degree enjoy 5 (women) or 6 (men) years of additional life expectancy at age 25.**

Remaining life expectancy for US adults at age 25 by education, 2005



Source: Brian L. Rostron et al., "Education Reporting and Classification on Death Certificates in the United States," *Vital and Health Statistics*, Series 2, no. 151 (2010): 1-16.



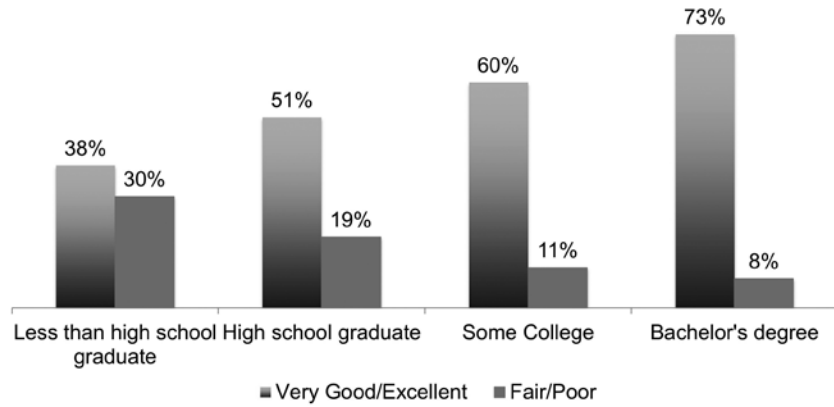
Health Care



Health Care

### Montanans with college degrees report better health.

Self-reported health status, Montanans aged 25-64 by education



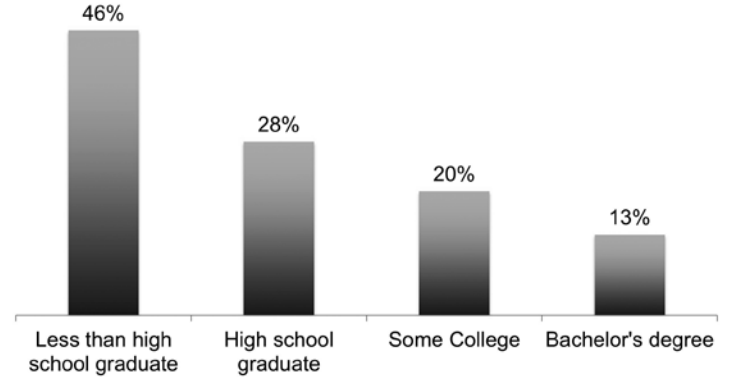
Source: BBER analysis of 2016 BRFSS



Health Care

### Montanans with a college degree are less likely to report a disability.

% of Montanans ages 25-64 with a disability



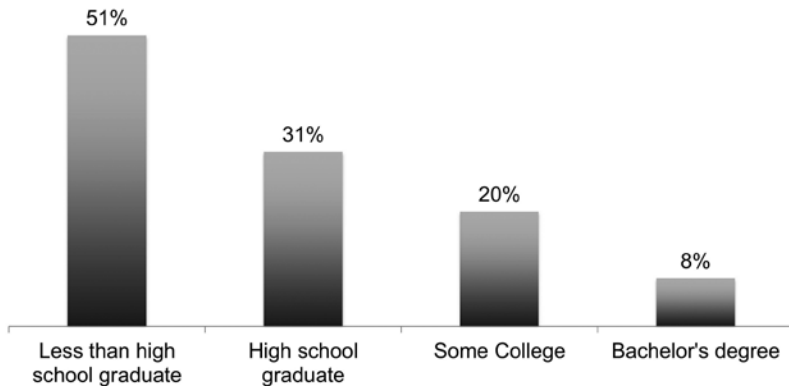
Source: BBER analysis of 2016 BRFSS. A person is classified as disabled if they indicate impairment on any of the 6 "ACS disability" questions.



Health Care

### Montanans with college degrees are less likely to smoke.

% of Montanans ages 25-64 who are current smokers



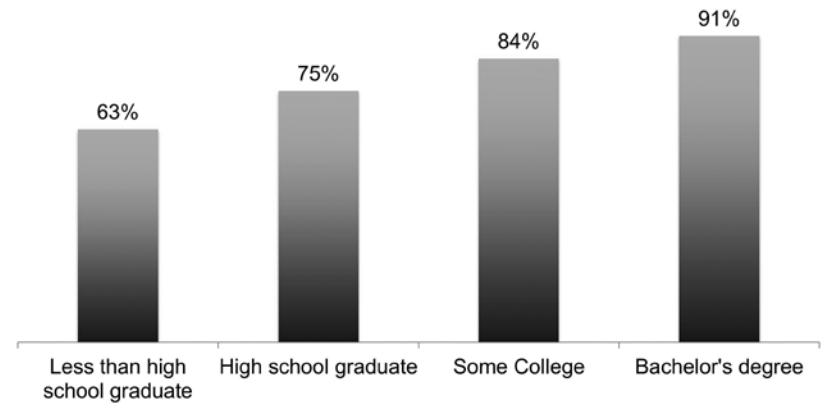
Source: BBER analysis of 2016 BRFSS.



Health Care

### Montanans with college degrees are more likely to exercise.

% of Montanans ages 25-64 who exercised at least once in past 30 days.



Source: BBER analysis of 2016 BRFSS.

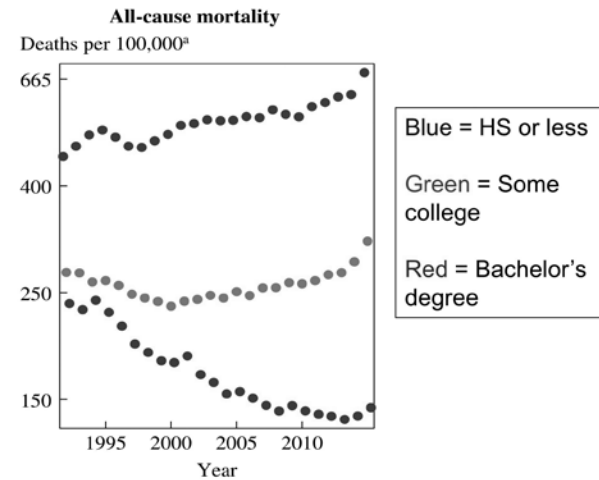


Health Care

## The health effects of education may spill over to others.

- (1) More educated mothers have healthier babies.
- (2) Adults with more educated parents report better health.
- (3) Parents with more educated children report better health (e.g., parents of college educated children are less likely to smoke)
- (4) A more educated spouse is also associated with better health.

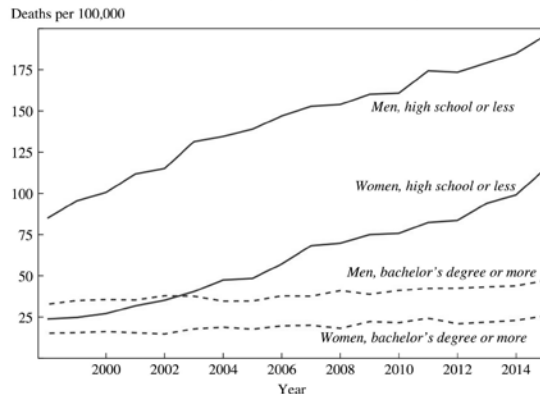
## The difference in mortality by education is increasing for middle aged (30-64) non-Hispanic whites.



Source: Case and Deaton (2017) "Mortality and Morbidity in the 21<sup>st</sup> Century"

## Rising mortality for less educated non-Hispanic whites reflects "deaths of despair" (death from drugs, alcohol, or suicide).

Figure 11. Deaths of Despair for White Non-Hispanics Age 50–54, by Level of Education, 1998–2015<sup>a</sup>



Sources: National Vital Statistics System; authors' calculations.  
a. Deaths of despair refer to deaths by drugs, alcohol, or suicide.

## Does education improve health?

Three possibilities for observed correlation between health and education:

- (1) Poor health => Less education
- (2) More education => Better health
- (3) Something else (e.g., parent income, genetics) => Both more education and better health

**While establishing a causal link between education and health is hard, some evidence suggests that education improves health.**

See: Cutler and Lleras-Muney (2006) "Education and Health: Evaluating Theories and Evidence"; Cutler and Lleras-Muney (2010) "Understanding Differences in Health Behaviors by Education"; Galama et al (2017) "The Effect of Education on Health and Mortality: A Review of Experimental and Quasi-Experimental Evidence."

## Why might education improve health?

- (1) More resources – education leads to higher income, insurance, better access to health care
- (2) Information and cognitive skills – education provides more access to information and improves critical thinking skills and decision making ability.
- (3) Non-cognitive skills – education boosts social-emotional skills that provide more stable family and work relationships which improve health.
- (4) Social networks – more education leads to a large, more useful social network; the more educated also are more likely to have peers who disapprove of “bad” behavior.
- (5) Safer work environment – the more educated are less likely to work at dangerous or physically demanding jobs.
- (6) Preferences – e.g., education makes people more risk averse.
- (7) Status – higher status reduces stress and stress-related illness
- (8) Adoption – education makes people more likely to effectively adopt new knowledge and technology

# The Outlook for Real Estate and Construction

Brandon Bridge,  
Economist and Dir. Of Forecasting  
Bureau of Business and Economic Research



Real Estate and Construction

## Are Real Estate Markets Finally Normal?

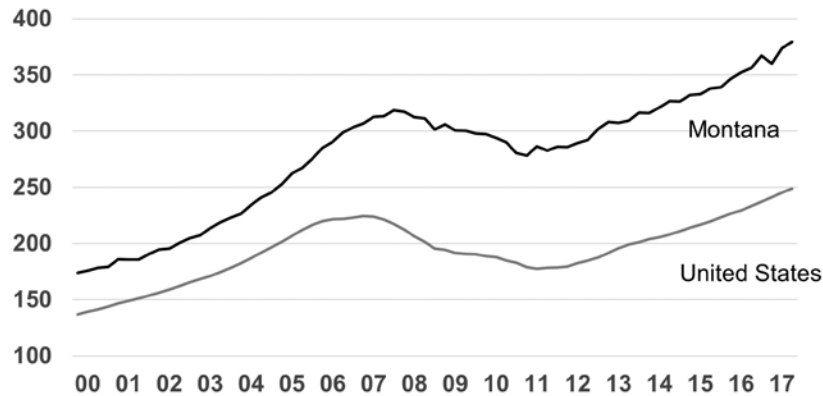
- Distress sales, fore-closures, & delinquencies are behind us
- Many Montana markets are booming
- Price appreciation, sales volumes roaring back
- Low inventories in high demand areas creating sellers market
- Single family home construction is restrained
- Underwater mortgages still exist



Real Estate and Construction

### Strong Housing Price Growth Since 2011

FHFA Housing Price Index, U.S., 1991=100



Source: Federal Housing Finance Agency,



Real Estate and Construction

### Housing Price Increases Since 2000 Closely Track Economic Growth

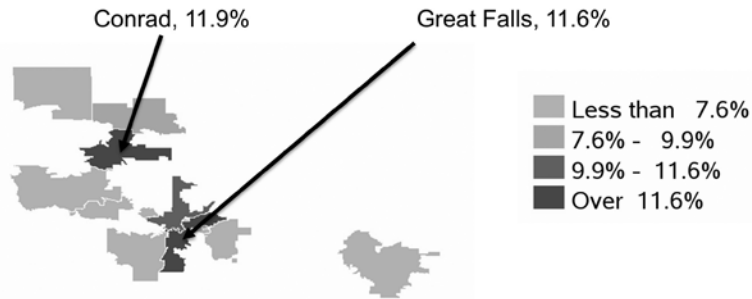
Percent Change, Housing Price Index, 2016 vs. 2000



Real Estate and Construction

### Price Growth in Great Falls Region is More Restrained

Percent Growth in Housing Price Index by Zip Code Since 2012



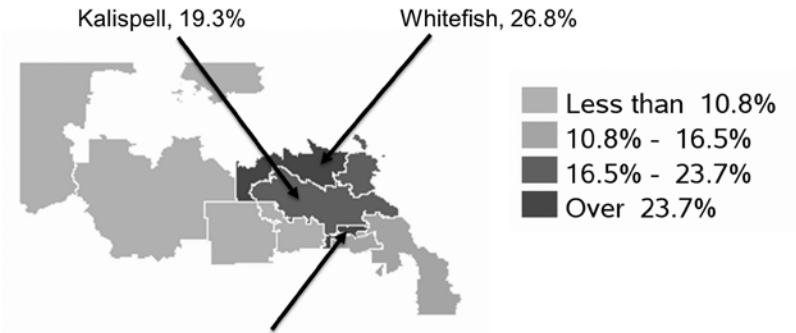
Source: Federal Home Finance Agency



Real Estate and Construction

### Whitefish Pacing Price Growth in Northwest Montana

Percent Growth in Housing Price Index by Zip Code Since 2012



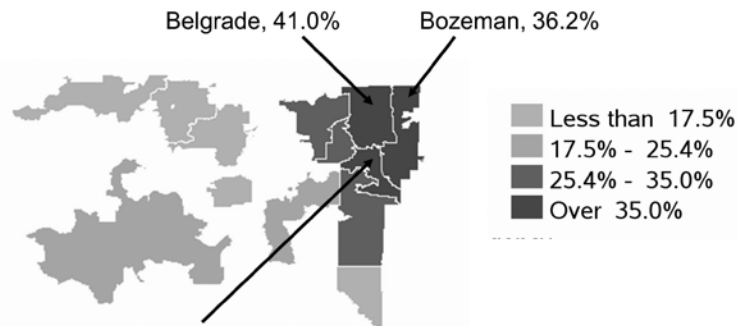
Source: Federal Home Finance Agency



Real Estate and Construction

### Strong Price Acceleration in Bozeman

Percent Growth in Housing Price Index by Zip Code Since 2012



Source: Federal Home Finance Agency



Real Estate and Construction

### Price Growth More Restrained in Helena

Percent Growth in Housing Price Index by Zip Code Since 2012



Source: Federal Home Finance Agency



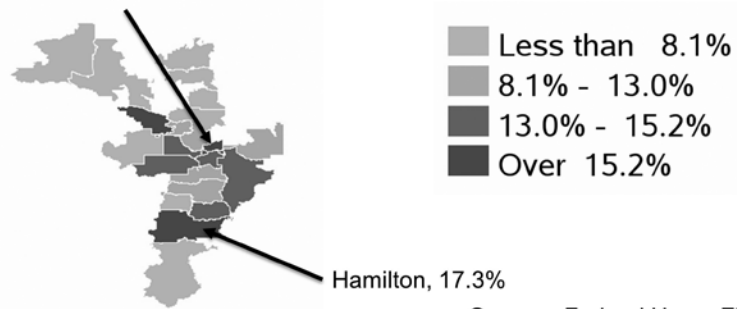
Real Estate and Construction



### Urban Areas Faring Well in Missoula Region

Percent Growth in Housing Price Index by Zip Code Since 2012

Missoula (Rattlesnake), 16.9%



Hamilton, 17.3%

Source: Federal Home Finance Agency



Real Estate and Construction

### Billings Home Prices Holding Up

Percent Growth in Housing Price Index by Zip Code Since 2012

Billings, 16.6%



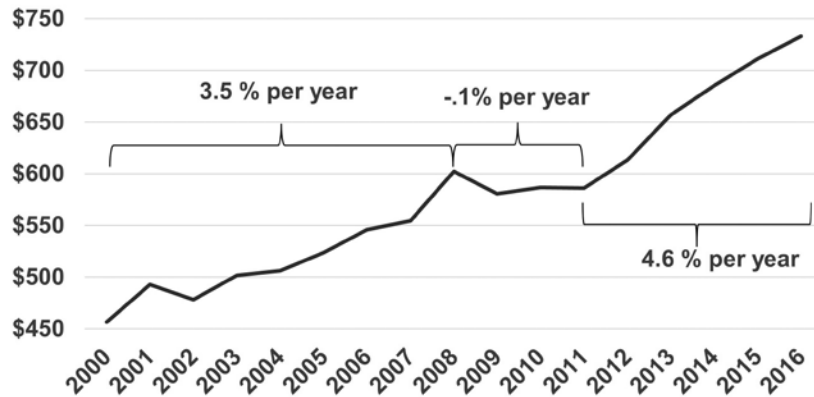
Livingston, 24.6%

Source: Federal Home Finance Agency



Real Estate and Construction

### No Sign of Moderation in Rents



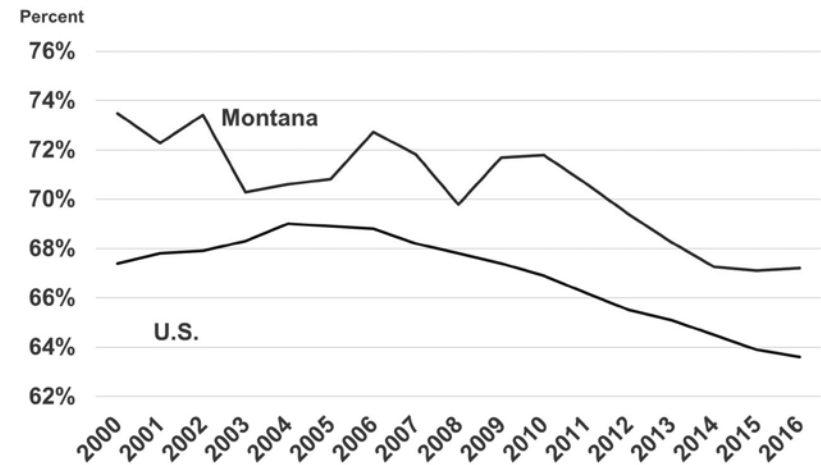
Montana Residential Rent, Inflation Adjusted (2014\$)

Source: U.S. Census Bureau.



Real Estate and Construction

### Will the Erosion of Homeownership Rates Continue?



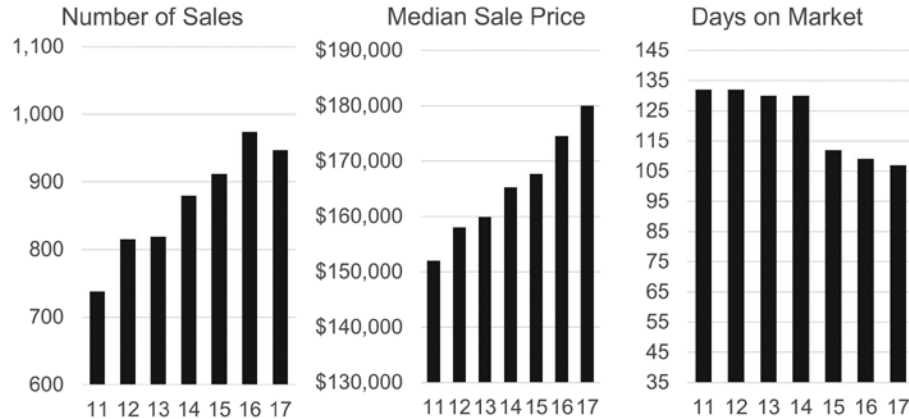
Source: U.S. Census Bureau.



Real Estate and Construction

# Markets Looking Much Healthier

Cascade County Market Statistics



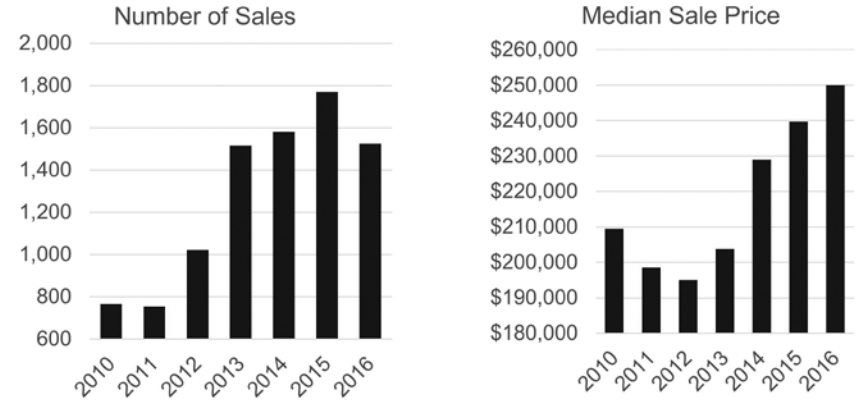
Source: Great Falls Association of Realtors.



Real Estate and Construction

# Markets Looking Much Healthier

Flathead County Market Statistics



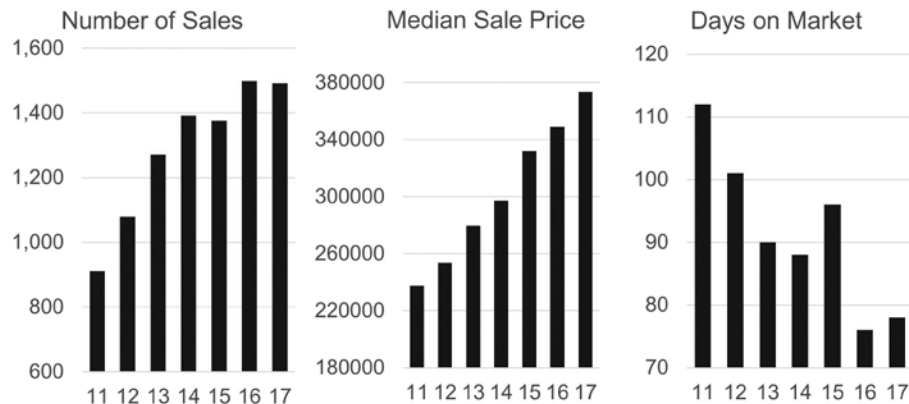
Source: Montana Department of Revenue.



Real Estate and Construction

# Market Continues to Heat Up

Gallatin County Market Statistics for Single Family Homes



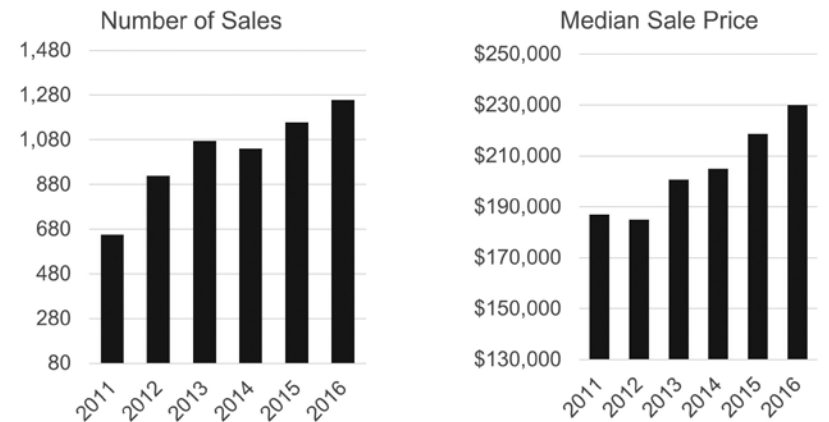
Source: Gallatin Association of Realtors.



Real Estate and Construction

# Sale Price Growth

Lewis and Clark County Market Statistics



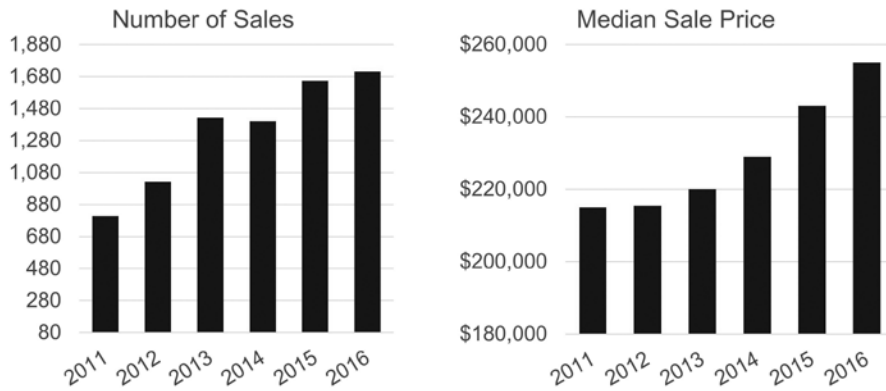
Source: Montana Department of Revenue.



Real Estate and Construction

# Sale Price Growth

Missoula County Market Statistics



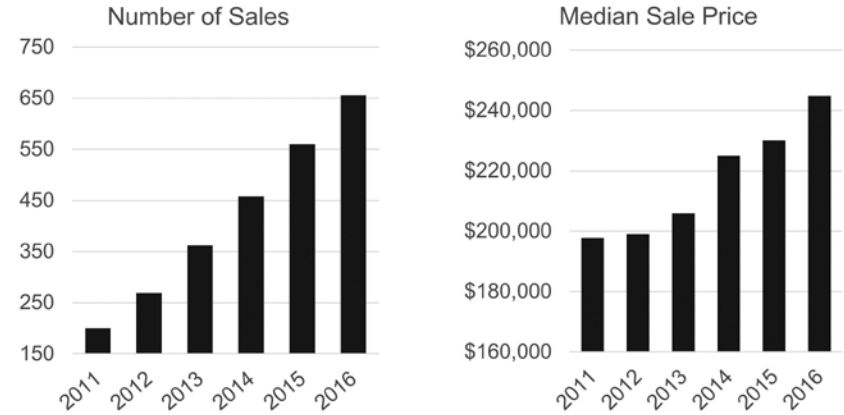
Source: Montana Department of Revenue.



Real Estate and Construction

# Markets Looking Much Healthier

Ravalli County Market Statistics



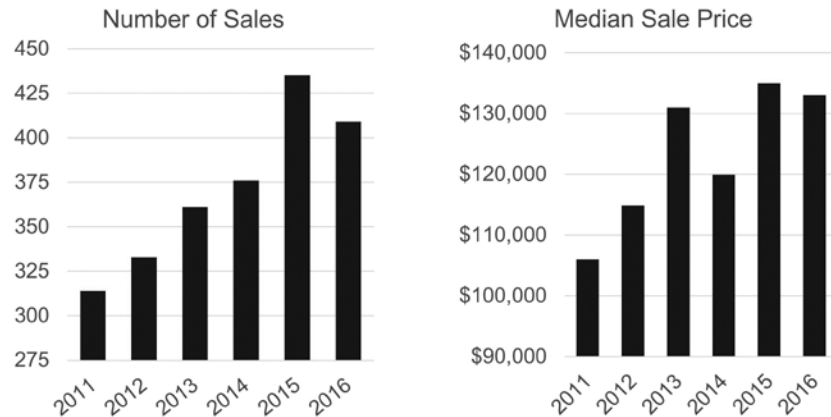
Source: Montana Department of Revenue.



Real Estate and Construction

# Markets Looking Much Healthier

Silver Bow County Market Statistics



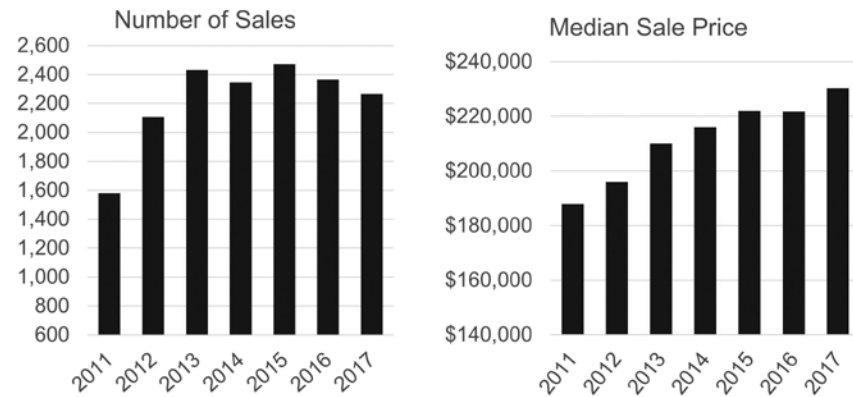
Source: Montana Department of Revenue.



Real Estate and Construction

# Markets Looking Much Healthier

Yellowstone County Market Statistics



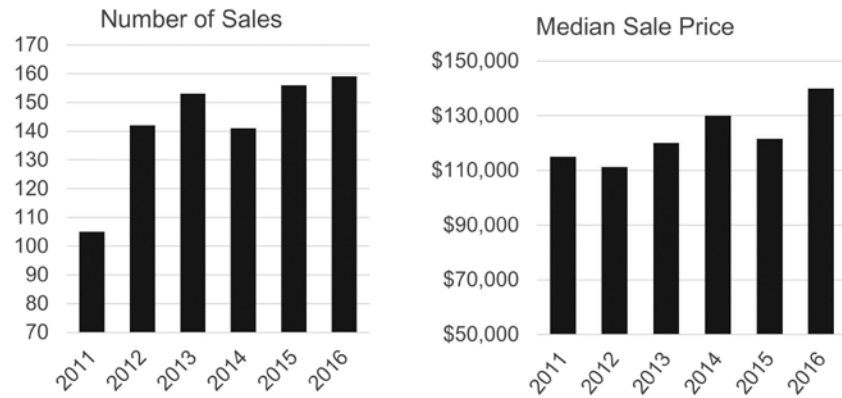
Source: Billings Association of Realtors



Real Estate and Construction

# Markets Looking Much Healthier

Fergus County Market Statistics



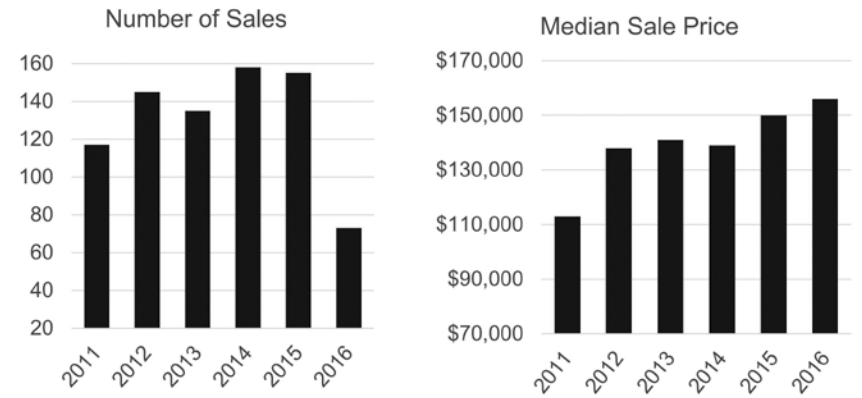
Source: Montana Department of Revenue.



Real Estate and Construction

# Markets Looking Much Healthier

Hill County Market Statistics



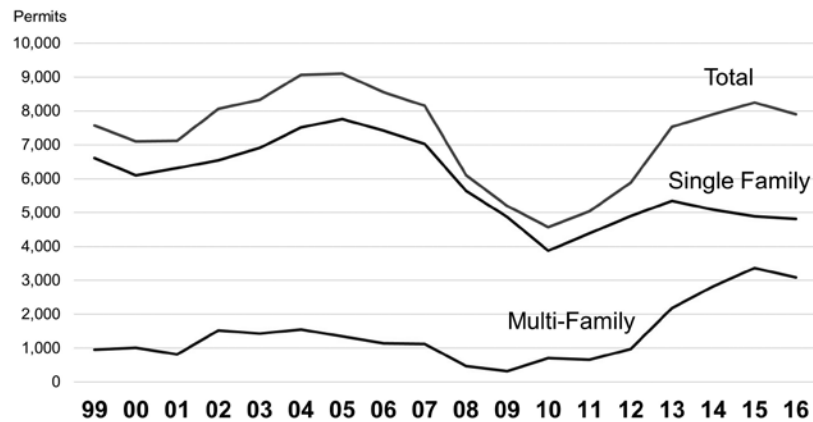
Source: Montana Department of Revenue.



Real Estate and Construction

# New Home Construction is Restrained

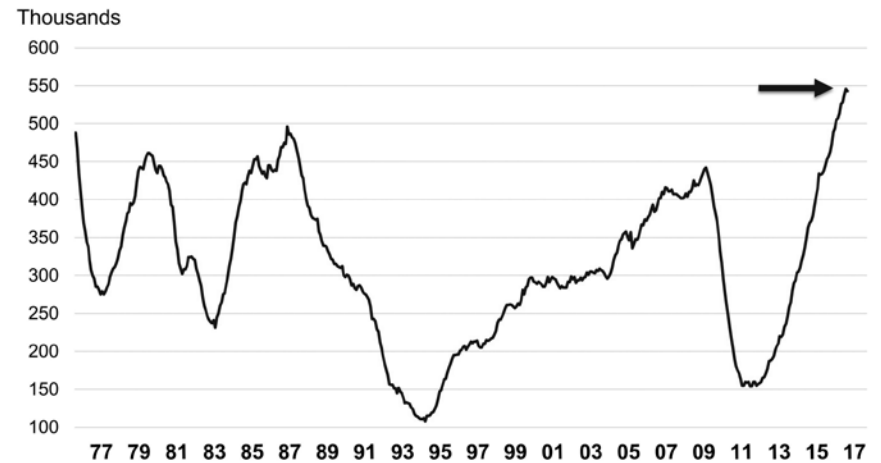
Housing Permits, Montana



Real Estate and Construction

# Surge in Multi-Family Structures

New Privately Owned Housing Units Under Construction, 5-Units or More, U.S.

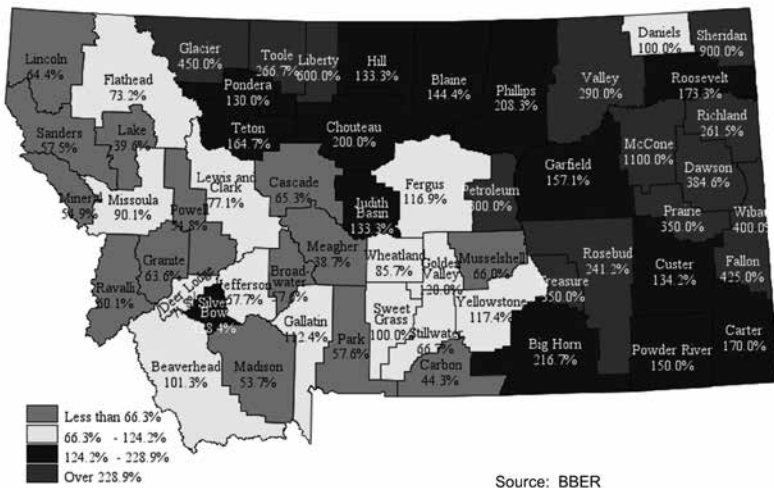


Source: U.S. Census Bureau



Real Estate and Construction

## Housing Starts, 2016 as Pct. Of Peak

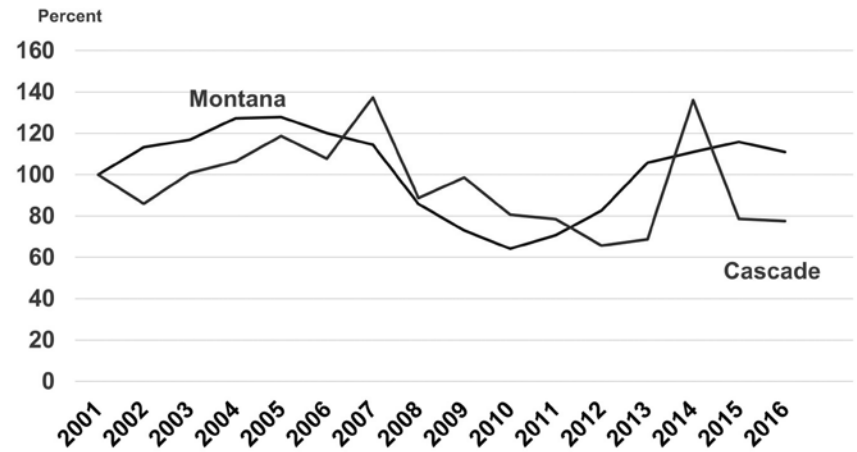


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## Housing Starts, Cascade County vs. Montana

Index, 2001 = 100

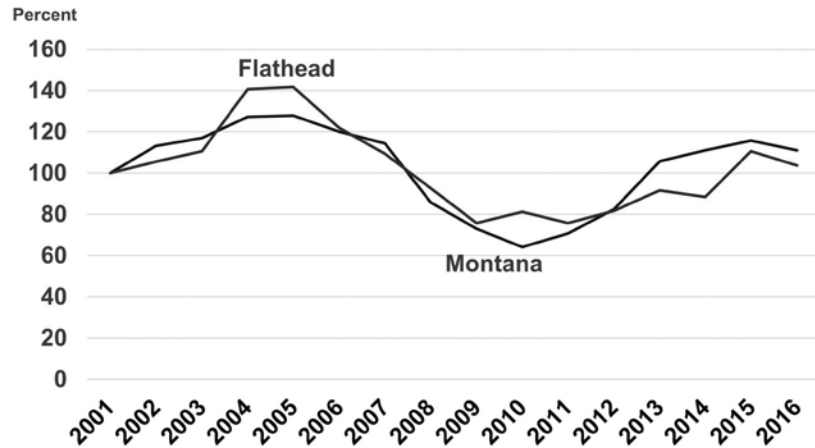


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## Housing Starts, Flathead County vs. Montana

Index, 2001 = 100



Source: Bureau of Business and Economic Research and U.S. Census Bureau.

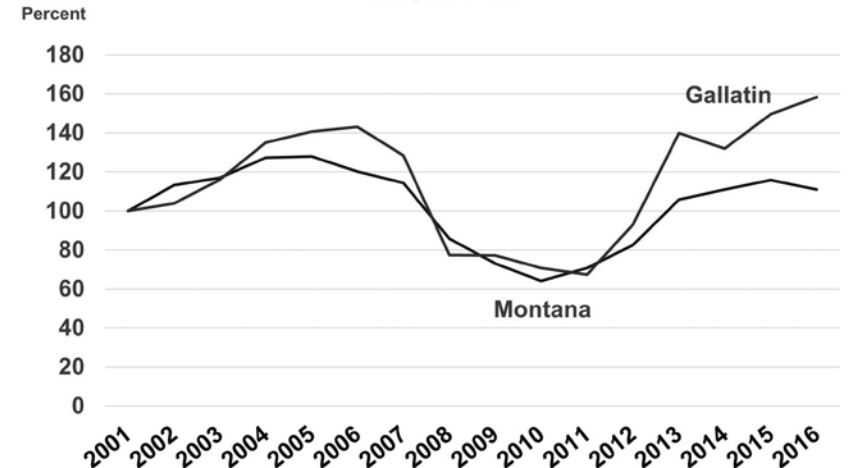


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## Housing Starts, Gallatin County vs. Montana

Index, 2001 = 100



Source: Bureau of Business and Economic Research and U.S. Census Bureau.

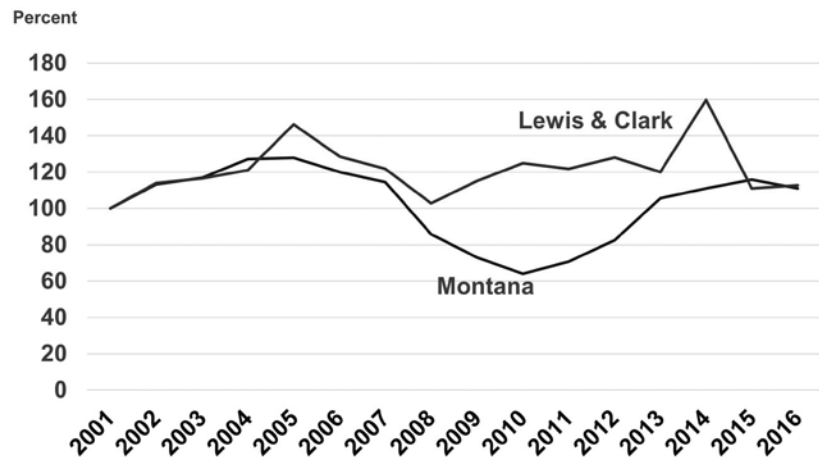


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### Housing Starts, Lewis and Clark County vs. Montana

Index, 2001 = 100



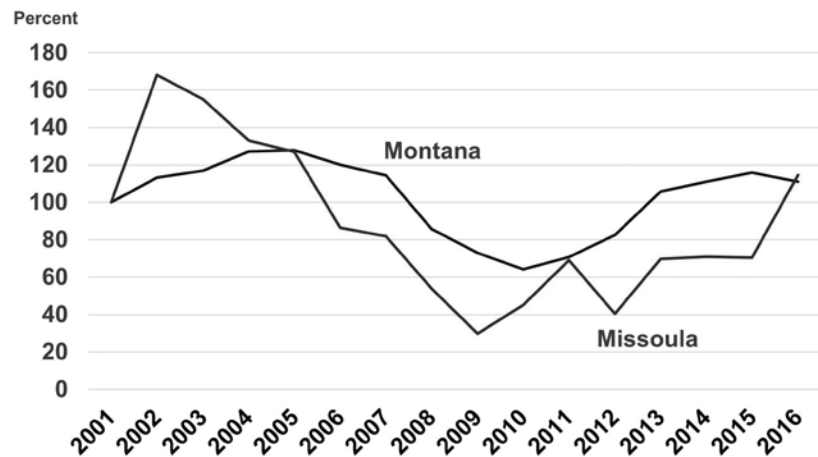
Source: Bureau of Business and Economic Research and U.S. Census Bureau.



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### Housing Starts, Missoula County vs. Montana

Index, 2001 = 100



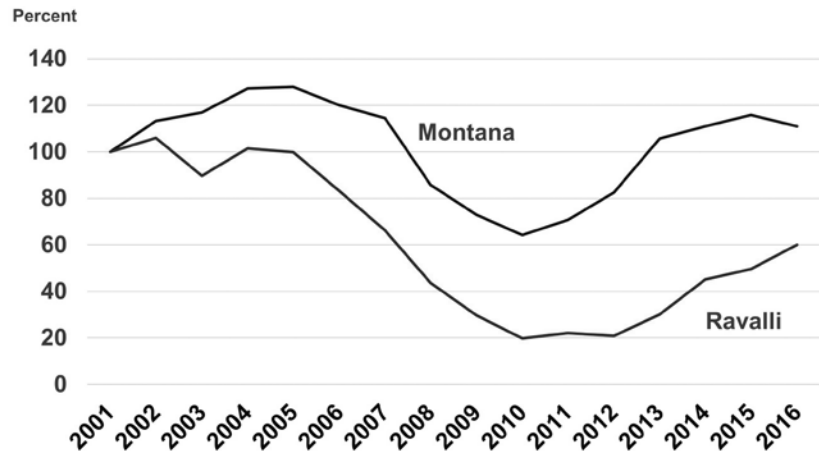
Source: Bureau of Business and Economic Research and U.S. Census Bureau.



Real Estate and Construction

### Housing Starts, Ravalli County vs. Montana

Index, 2001 = 100



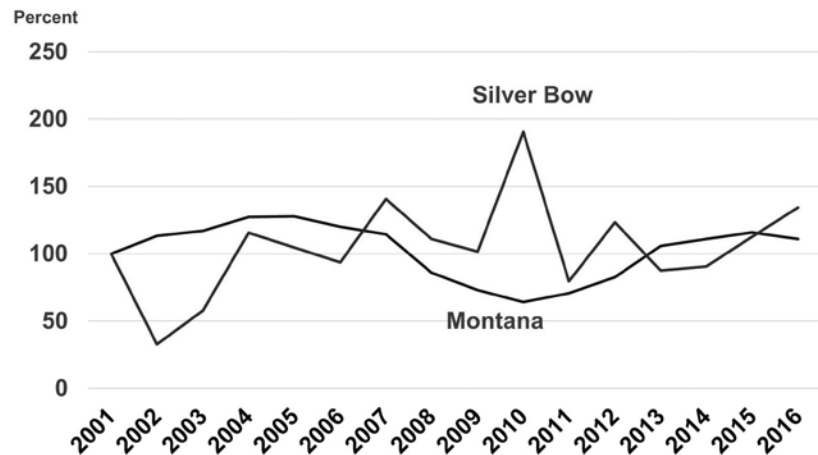
Source: Bureau of Business and Economic Research and U.S. Census Bureau.



Real Estate and Construction

### Single Family Housing Starts, Silver Bow County vs. Montana

Index, 2001 = 100



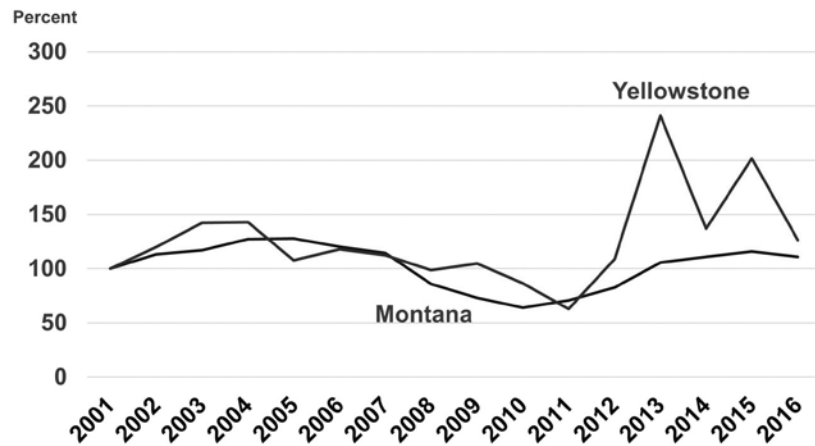
Source: Bureau of Business and Economic Research and U.S. Census Bureau.



Real Estate and Construction

## Housing Starts, Yellowstone County vs. Montana

Index, 2001 = 100



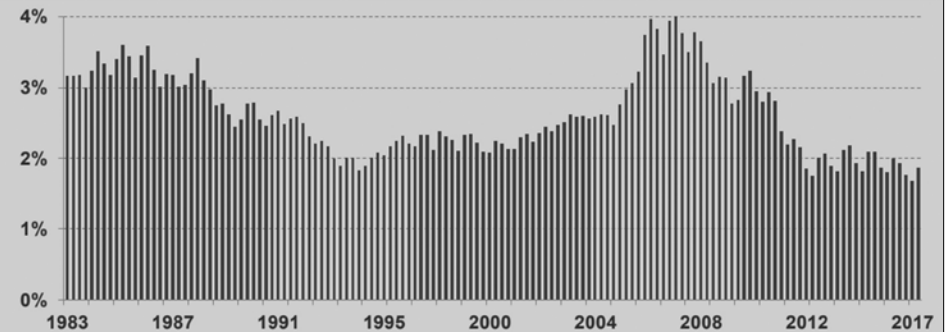
Source: Bureau of Business and Economic Research and U.S. Census Bureau.



Real Estate and Construction

## Home Inventories Lowest in 25 Years

Homes for Sale as Percent of Households, U.S.



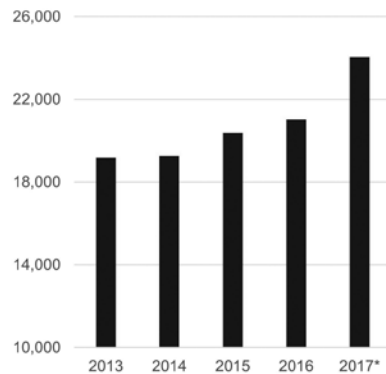
Source: NAR and U.S. Census Bureau



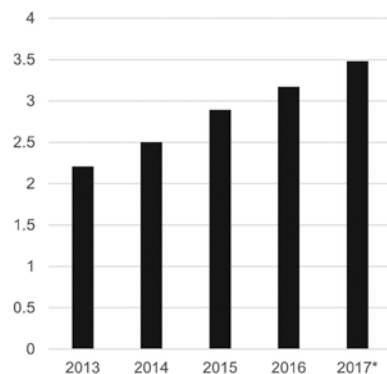
Real Estate and Construction

## Steady Growth in Mortgage Originations

Mortgages Originated, Montana



Mortgage Dollar Volume, Montana



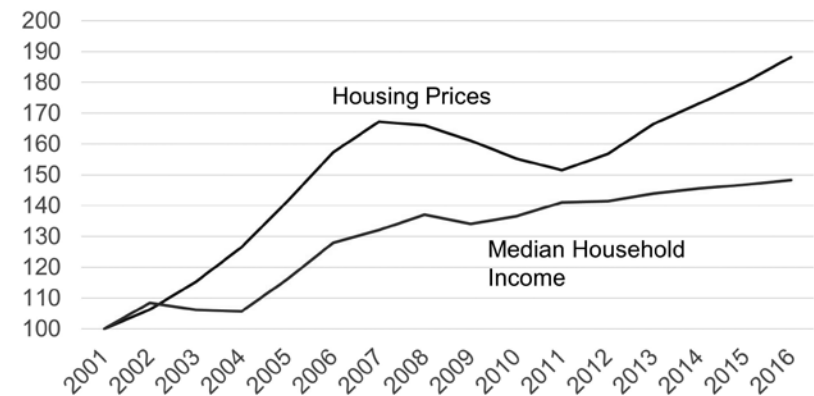
Source: AEI



Real Estate and Construction

## Housing Affordability Not Easily Solved

Percent



Montana Housing Price Index and Montana Median Household Income Index, 2001 = 100

Source: U.S. Federal Housing Finance Agency and Census Bureau.

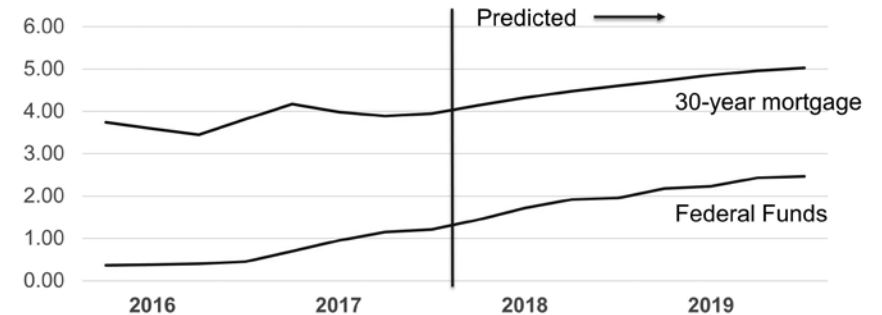


Real Estate and Construction

## Looking Ahead to 2018

- Interest Rates are Moving Up

## Mortgage Rates Creeping Up to Historical Norms



Source: IHS Markit

## Looking Ahead to 2018

- Interest Rates are Moving Up
- Tax Reform Takes Hold

## How Will Tax Reform Impact Real Estate?

- Law is friendly to commercial development
- Mortgage interest deduction caps (from \$1M to \$500K) will have limited impact on Montana
- Subsidized housing programs may be affected
- What will happen when budget deficits swell?



## Looking Ahead to 2018

- Interest Rates are Moving Up
- Tax Reform Takes Hold
- Is Real Estate Risk Growing?



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Real Estate and Construction

## Assessing Housing Risk

- Price growth is challenging loan quality
- Median down payment of home buyer in 2017 was 10%
- 1.36 million mortgages underwater in 2017 is still twice the pre-crash level
- Other forms of debt (especially student debt) have risen significantly



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Real Estate and Construction

## Outlook for 2018

- Real estate markets in Montana will remain strong
- Affordability will get worse
- Residential construction will continue to underperform
- The boom in multifamily construction is over
- Risk is growing, but still not a concern



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Real Estate and Construction

# Montana's Forest Industry & Wood Products

Todd A. Morgan, Director  
Forest Industry Research Program  
Bureau of Bus. & Econ. Research



Forest Industry & Wood Products

## Montana Forests & Timber

- 25.9 million acres
- 69% federal ownership

### National Forests

61% of timberland  
76% of timber volume  
20-25% of annual harvest  
Over 60% of burned area  
80% of insect impact area

County	Forest acres (thousand)	National Forest
Cascade	332	53%
Flathead	2,794	63%
Gallatin	902	66%
Lewis & Clark	1,391	71%
Lincoln	2,182	80%
Missoula	1,410	51%
Ravalli	1,192	88%
Silver Bow & Deer Lodge	534	63%
Yellowstone	143	0%
<b>All counties</b>	<b>25,820</b>	<b>60%</b>

Source: USDA Forest Service, FIA Program



Forest Industry & Wood Products

## Montana Forest-Related Employment

Private sector	Jobs	Public sector	Jobs
Wood & paper products	3,011	US Forest Service	2,817
Forestry support activities	2,690	National Park Service	346
Forestry & logging	1,534	BLM & BIA	307
		DNRC & FWP	280
<b>Total</b>	<b>7,235</b>	<b>Total</b>	<b>3,750</b>

About 11,000 forest-related workers  
Private sector: >\$320 million in earnings  
Public agencies: >\$220 million in earnings



Forest Industry & Wood Products

## Montana Forest Industry (Private Sector)



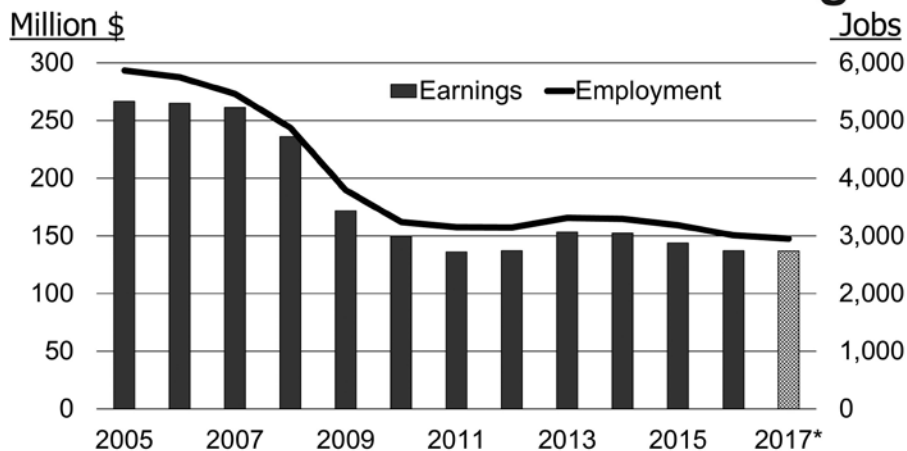
	2005	2009	2016
<b>Workers</b>	<b>9,821</b>	<b>7,620</b>	<b>7,235</b>
<b>Earnings (millions)</b>	<b>\$396</b>	<b>\$277</b>	<b>\$320</b>
<b>Primary sales (millions)</b>	<b>\$1,078</b>	<b>\$592</b>	<b>\$563</b>
<b>Lumber production (MMBF)</b>	<b>1,001</b>	<b>418</b>	<b>506</b>

Sources: Bureau of Economic Analysis, Western Wood Products Association, BBER.



Forest Industry & Wood Products

# Montana Wood Products Manufacturing



Sources: Bureau of Economic Analysis, Western Wood Products Association, BBER. \*2017 Estimated.



Forest Industry & Wood Products

# Montana's Wood Products Industry

~140 establishments

~80 timber users

- 8 larger, 20+ small sawmills
- Plywood, MDF, particleboard
- Log homes, post & pole
- Pellets, bark, fuels-for-schools



- Mostly small, privately held
- Most don't own forest land
- Nearly all rely on some timber from public lands



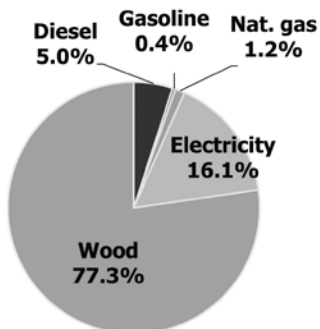
Forest Industry & Wood Products

# Montana Sawmill Energy Use

Total on-site energy use per MBF of lumber

- 1.1 MMBtu per MBF = Southwest ave.
- 3.8 MMBtu per MBF = Montana ave.
- 9.4 MMBtu per MBF = National ave.

Energy consumption of Montana sawmills



Forest Products Journal 66(3/4):155-163  
Forest Products Journal 66(5/6):326-337

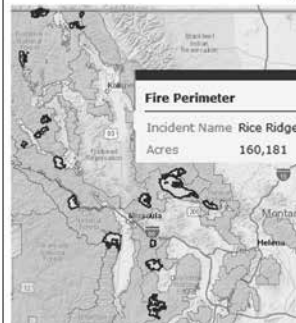


Forest Industry & Wood Products

# Fire, Smoke & Salvage

2017 Montana wildfires = 1,276,479 acres

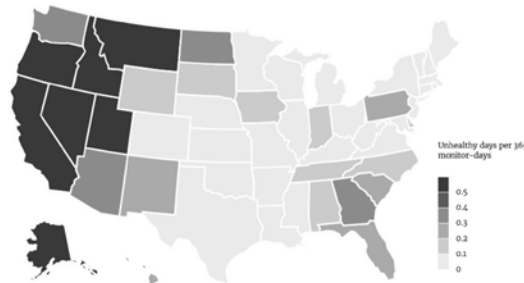
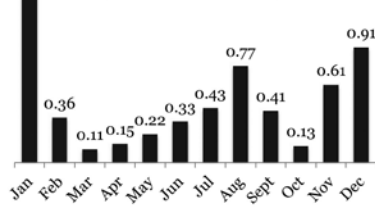
- Forest Service > 600,000 acres
- Average = 175,000 acres
- National suppression cost > \$ 2.4 Billion
- MT suppression costs > \$74 million



Forest Industry & Wood Products

In **Western states**, **unhealthy days** are frequently the result of **wildfire smoke**, and **we have more of them**. 81% of unhealthy days occurred in AK, CA, ID, MT, NV, UT, and WA. These states average 1.6 unhealthy days per 365 monitor days; other states average 0.11 unhealthy days.

### Unhealthy days per 365 monitor days



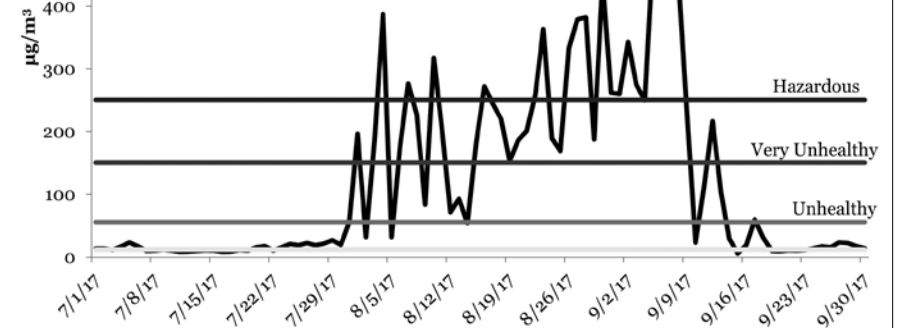
Source: Bryce Ward, BBER analysis of EPA daily PM<sub>2.5</sub> monitor data for all days and monitors from 2007-2016.



Forest Industry & Wood Products



### 24-Hour Average PM<sub>2.5</sub> Seeley Lake, MT

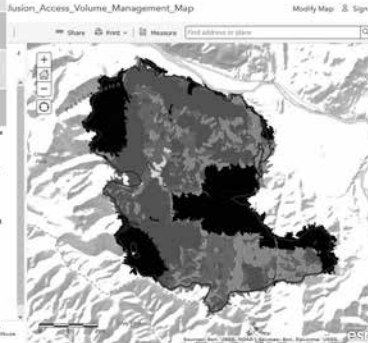


Forest Industry & Wood Products

## Forest Service Burned Area Response

Sheep Gap Fire	Acres
Total burned area	27,182
Outside of exclusion areas	18,956
Accessible (roads & slope)	11,352
Considered for timber mgmt.	6,719
Highest value & slowest deterioration	6,390

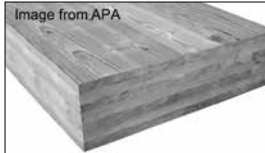
- Strategic approach
- 25 additional staff
- Incident Command Structure
- Emergency Situation Determination requests



Source: <https://usfs.maps.arcgis.com/apps/Cascade/index.html?appid=d3b3a962ed784e7096fbebfb75031a75>



Forest Industry & Wood Products



## SmartLam & CLT

- Cross-Laminated Timber (CLT)
- First U.S. manufacturer of CLT
- Columbia Falls, MT
- Buy & use softwood lumber



Image from APA



Images from SmartLam



Forest Industry & Wood Products



## Softwood Lumber (dis)Agreement



### Canada supplies about 1/3 of lumber in US

- 90-95% of lumber imports come from Canada
- 70-80% of Canadian lumber is exported to US
- Canadian companies now own 40+ US mills
  - Hedging bets against tariffs & log supply
  - Closer to wood supply & housing markets
  - Have funds to buy US mills

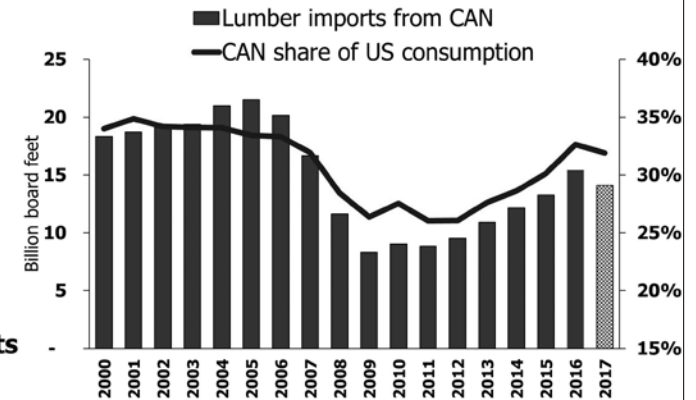


Forest Industry & Wood Products

## Canadian Lumber

### Volume & share of US market down in 2017

- US Commerce Department's 20%+ tariffs
- Bark beetles & fires impacted BC timber supply
- Chinese markets improved



Forest Industry & Wood Products

## Montana's Forest Industry & Wood Products Outlook

High expectations were not met in 2017.  
Expectations are mostly positive for 2018.

- Broader US economic conditions
- National homebuilding
- Softwood lumber & other trade
- All eyes on the Forest Service – fire salvage
- Agriculture markets & weather



Forest Industry & Wood Products

# Thank you!



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[www.BBER.umt.edu/FIR](http://www.BBER.umt.edu/FIR)



Forest Industry & Wood Products

# The Outlook for Cascade County

Patrick M. Barkey, Director  
Bureau of Bus. & Econ. Research



Cascade Outlook

## Cascade County Profile

Indicator	Value	State Rank
Total Population, 2016	81,755	5
Percent change since 2010	0.5%	35
Median age	38.0	47
Percent Aged 65 or Older	17.1%	
Percent with Bachelors Degree or Higher (Age 25+)	25.9%	14
Percent without Health Insurance Coverage, 2015	13.5%	43

Source: U.S. Census Bureau



Cascade Outlook

## Cascade County Profile

Indicator	Value	State Rank
Earnings per Job, 2016	\$46,667	8
Construction	\$58,723	8
Manufacturing	\$60,719	4
Retail Trade	\$32,736	12
Transportation and Warehousing	\$54,400	15
Information	\$50,451	14

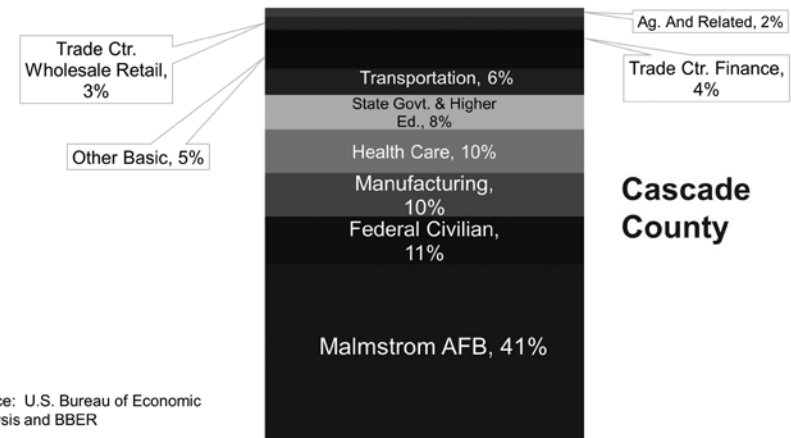
Source: U.S. Bureau of Economic Analysis



Cascade Outlook

## Drivers of Economic Activity

Percent Share of Income in Basic Industries



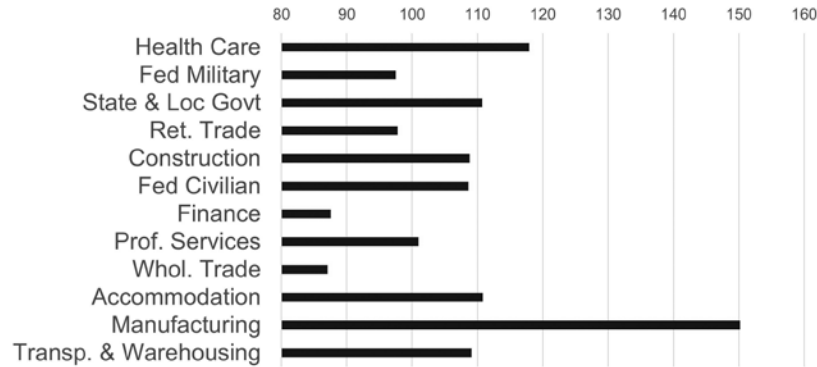
Source: U.S. Bureau of Economic Analysis and BBER



Cascade Outlook

## What Has Grown Since 2007

Inflation Corrected Earnings in 2016 as Percent of 2007



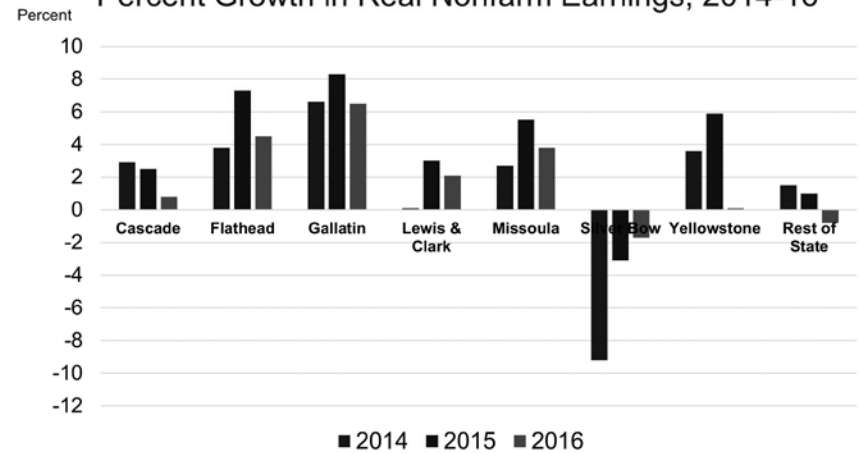
Source: U.S. Bureau of Economic Analysis



Cascade Outlook

## Growth Slowdown in 2016 Widespread

Percent Growth in Real Nonfarm Earnings, 2014-16

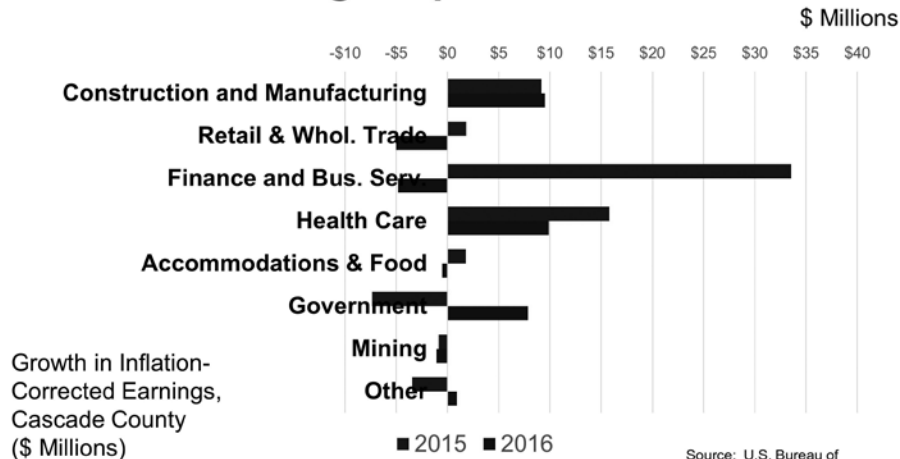


Source: U.S. Bureau of Economic Analysis



Cascade Outlook

## Manufacturing and Health Care Were Bright Spots in 2016



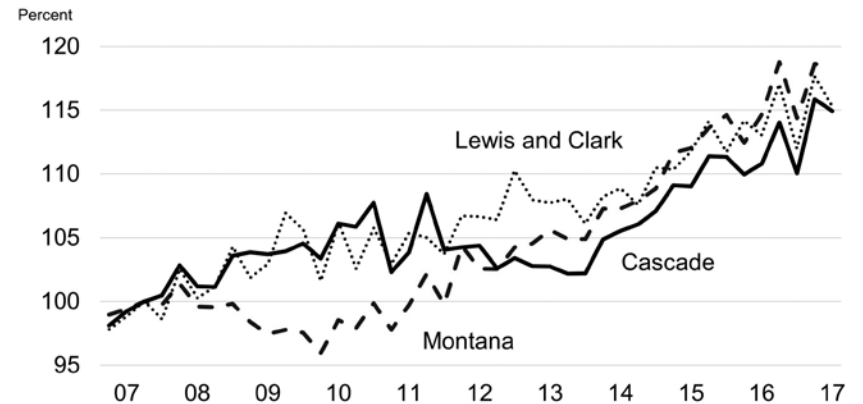
Source: U.S. Bureau of Economic Analysis



Cascade Outlook

## Recent Wage Growth More Erratic

Inflation-Corrected Covered Wages, Index 2007=100



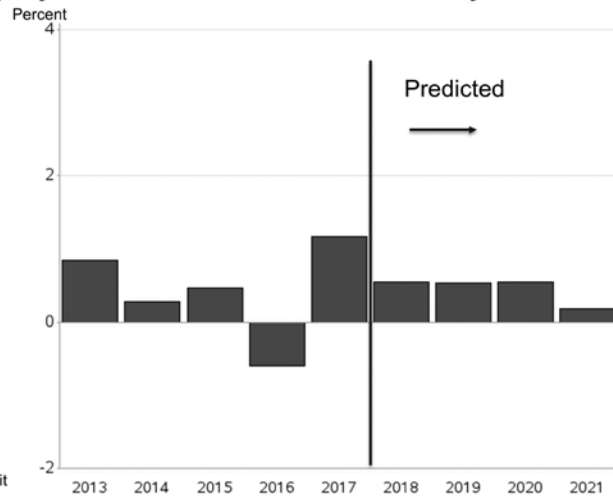
Seasonally adjusted by BBER  
Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages



Cascade Outlook

## Outlook for Job Growth is Measured

Employment Growth, Cascade County 2013-21



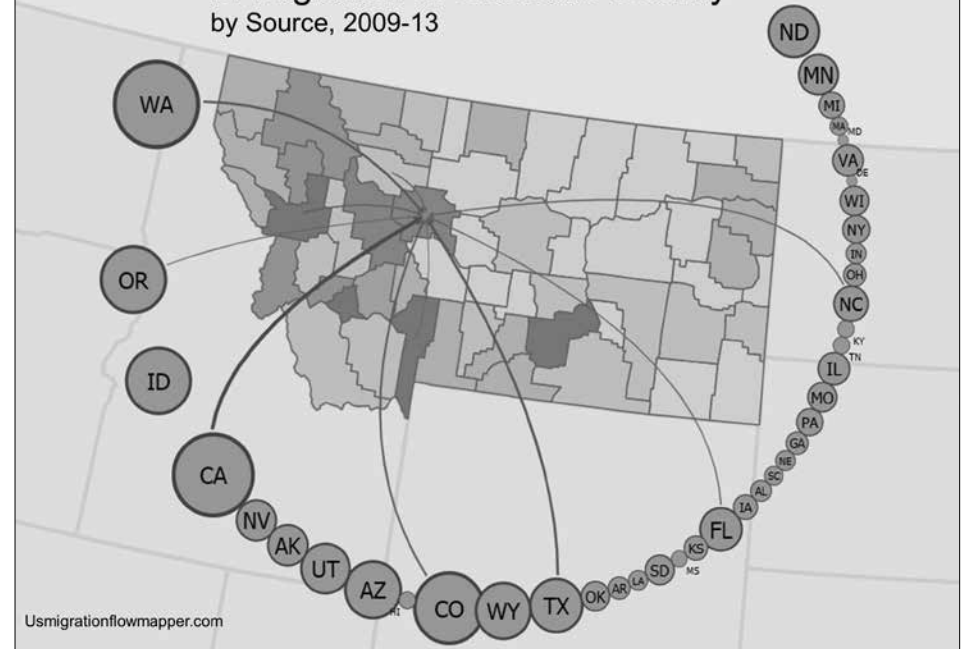
Source: IHS Markit



Cascade Outlook

## In-Migration to Cascade County

by Source, 2009-13



Usmigrationflowmapper.com

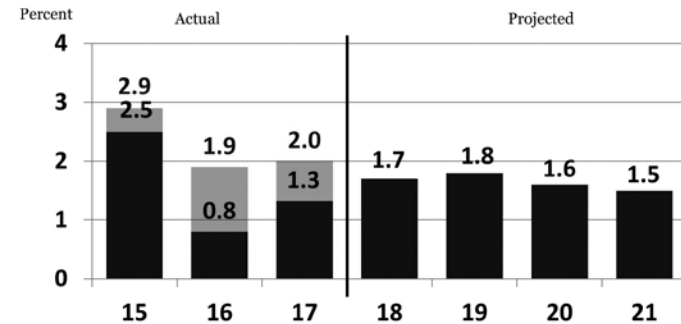
## Looking Ahead to 2018

- 2017 was a better year than 2016 for the Cascade County economy
- Manufacturing expansions and commercial construction are the bright spots
- Setbacks for farmers and ranchers have been felt
- Medicaid expansion has helped health care
- Stage is set for improved growth



Cascade Outlook

## Growth in Nonfarm Earnings, Cascade County, 2015-2021



Source: BBER and U.S. Bureau of Economic Analysis



Cascade Outlook



# The Outlook for Fergus County

Patrick M. Barkey, Director  
Bureau of Bus. & Econ. Research



2018 Fergus Outlook

## Fergus County Profile

Indicator	Value	State Rank
Total Population, 2016	11,413	19
Percent change since 2010	-1.5%	45
Median age	46.9	24
Percent Aged 65 or Older	22.7%	
Percent with Bachelors Degree or Higher (Age 25+)	28.6%	11
Percent without Health Insurance Coverage, 2015	14.4%	46

Source: U.S. Census Bureau



2018 Fergus Outlook

## Fergus County Profile

Indicator	Value	State Rank
Earnings per Job, 2016	\$36,816	31
Construction	\$64,096	4
Manufacturing	\$46,266	9
Retail Trade	\$30,539	19
Transportation and Warehousing	\$39,450	25

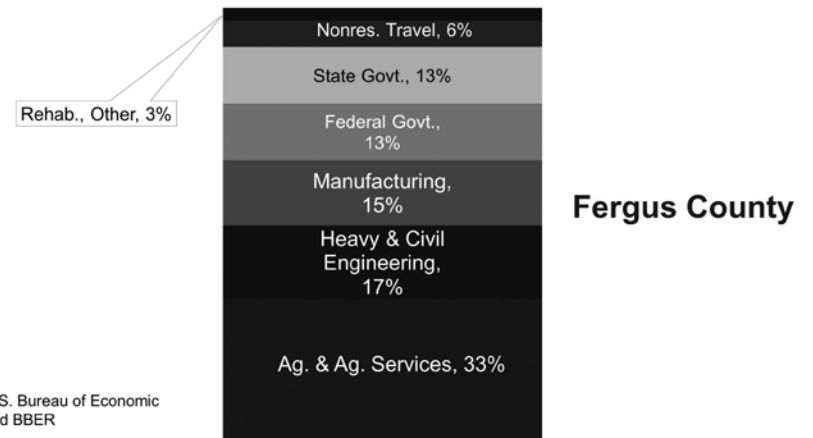
Source: U.S. Bureau of Economic Analysis



2018 Fergus Outlook

## Drivers of Economic Activity

Percent Share of Income in Basic Industries



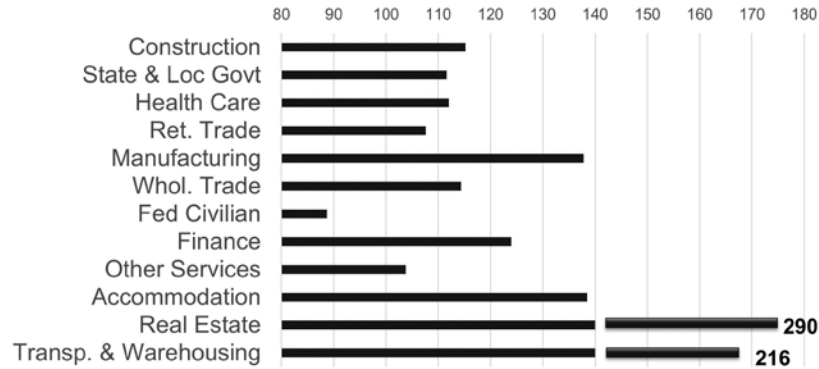
Source: U.S. Bureau of Economic Analysis and BBER



2018 Fergus Outlook

## What Has Grown Since 2007

Inflation Corrected Earnings in 2016 as Percent of 2007



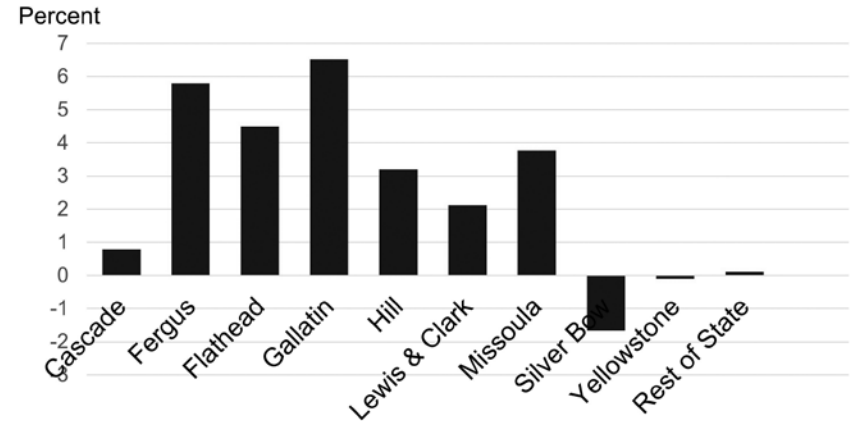
Source: U.S. Bureau of Economic Analysis



2018 Fergus Outlook

## Uneven Pattern of Growth in 2016

Percent Growth in Inflation-Corrected Nonfarm Earnings

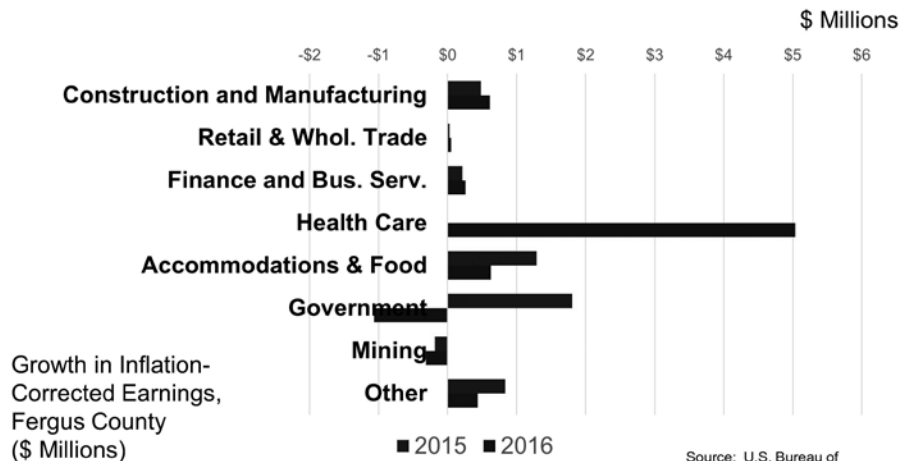


Source: U.S. Bureau of Economic Analysis



2018 Fergus Outlook

## Health Care Expanded Significantly in 2016



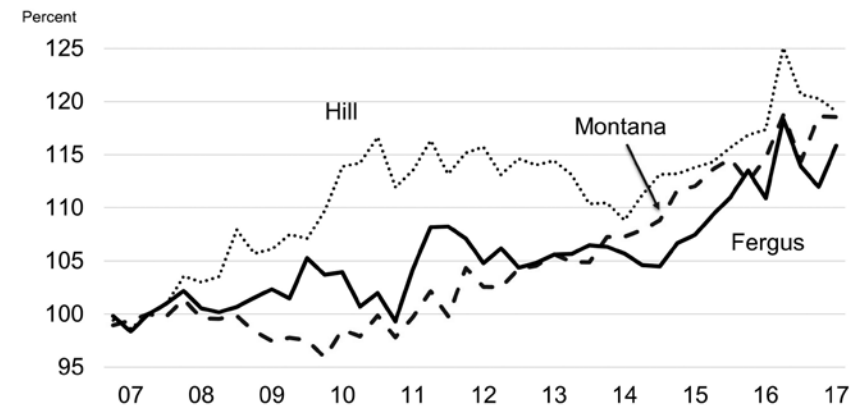
Source: U.S. Bureau of Economic Analysis



2018 Fergus Outlook

## Recent Wage Growth Has Been Weak

Inflation-Corrected Covered Wages, Index 2007=100



Seasonally adjusted by BBER

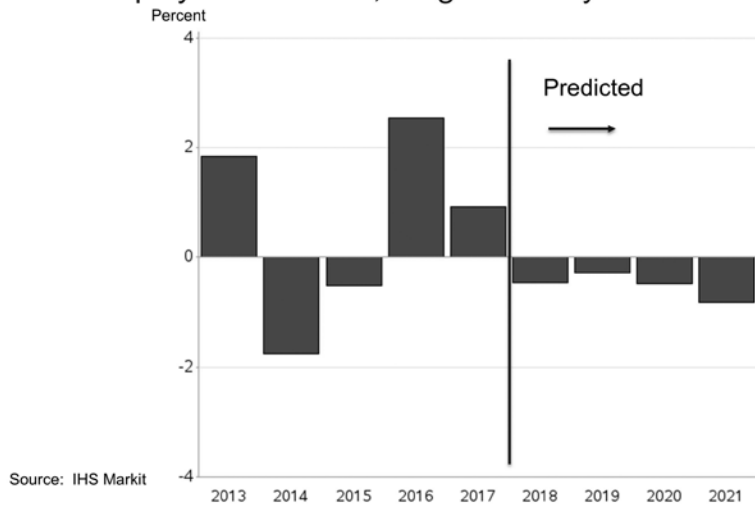
Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages



2018 Fergus Outlook

## Outlook for Job Growth is Pessimistic

### Employment Growth, Fergus County 2013-21



Source: IHS Markit

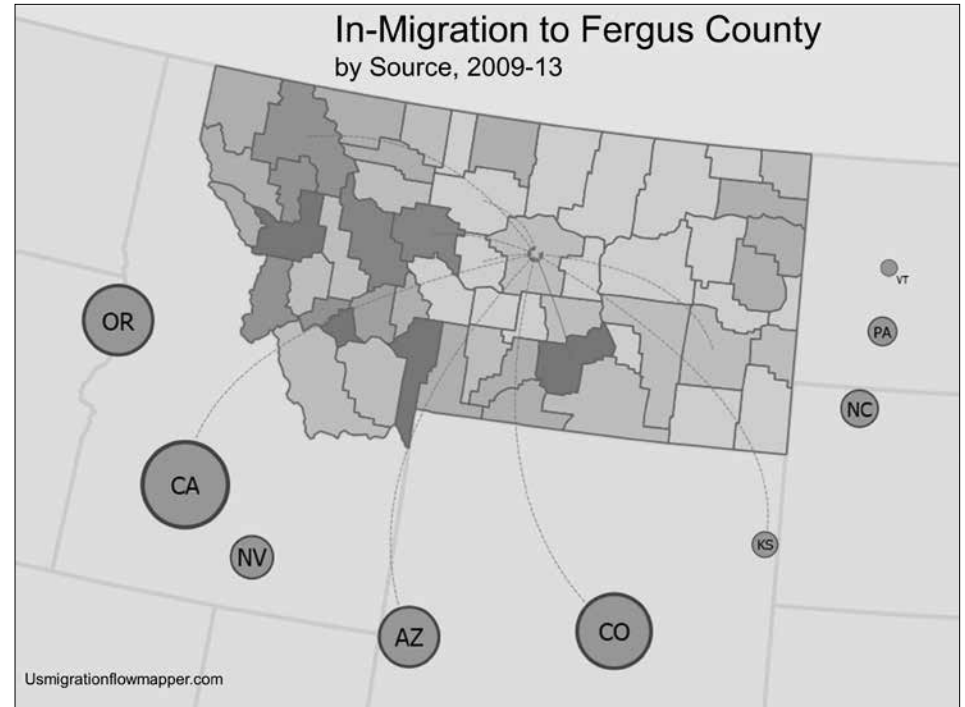


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2018 Fergus Outlook

## In-Migration to Fergus County

### by Source, 2009-13



Usmigrationflowmapper.com

## Looking Ahead to 2018

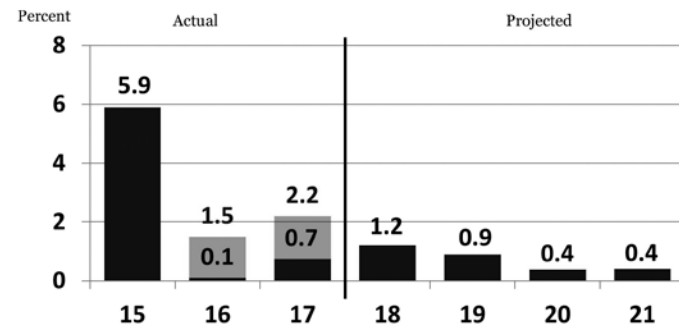
- Growth has picked up significantly beginning in 2015
- Manufacturing expansion, continued growth in heavy construction have led the way
- Recent success in visitor spending registering in the data
- Retail trade impacted by e-commerce competitors
- Stage is set for continued growth



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2018 Fergus Outlook

## Growth in Nonfarm Earnings, Fergus County, 2015-2021



Source: BBER and U.S. Bureau of Economic Analysis



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2018 Fergus Outlook

# The Outlook for Flathead County

Patrick M. Barkey, Director  
Bureau of Bus. & Econ. Research



2018 Flathead Outlook

## Flathead County Profile

Indicator	Value	State Rank
Total Population, 2016	98,082	4
Percent change since 2010	7.9%	7
Median age	42.1	36
Percent Aged 65 or Older	17.0%	
Percent with Bachelors Degree or Higher (Age 25+)	28.9%	12
Percent without Health Insurance Coverage, 2015	13.5%	43

Source: U.S. Census Bureau



2018 Flathead Outlook

## Flathead County Profile

Indicator	Value	State Rank
Earnings per Job, 2016	\$41,352	18
Mining	\$27,385	21
Construction	\$52,786	16
Manufacturing	\$54,874	5
Retail Trade	\$29,905	20
Information	\$39,301	22

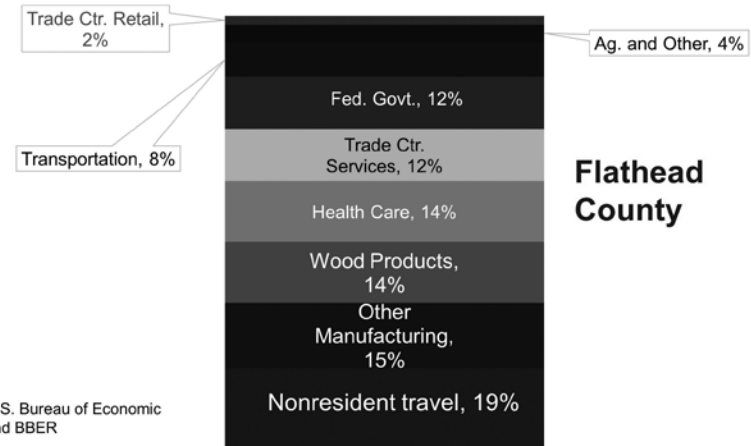
Source: U.S. Bureau of Economic Analysis



2018 Flathead Outlook

## Drivers of Economic Activity

Percent Share of Income in Basic Industries



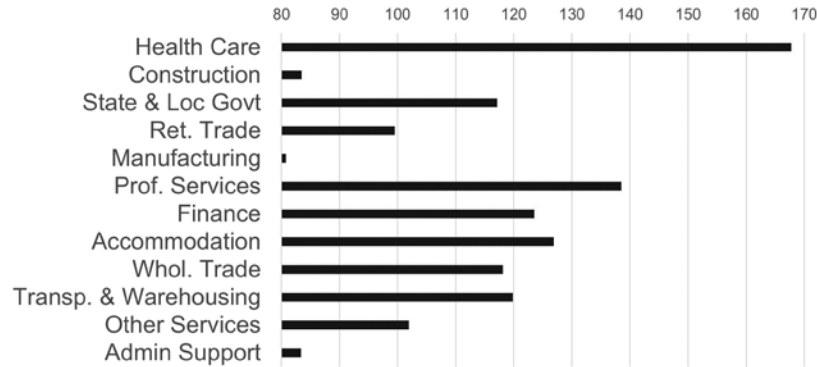
Source: U.S. Bureau of Economic Analysis and BBER



2018 Flathead Outlook

## What Has Grown Since 2007

Inflation Corrected Earnings in 2016 as Percent of 2007



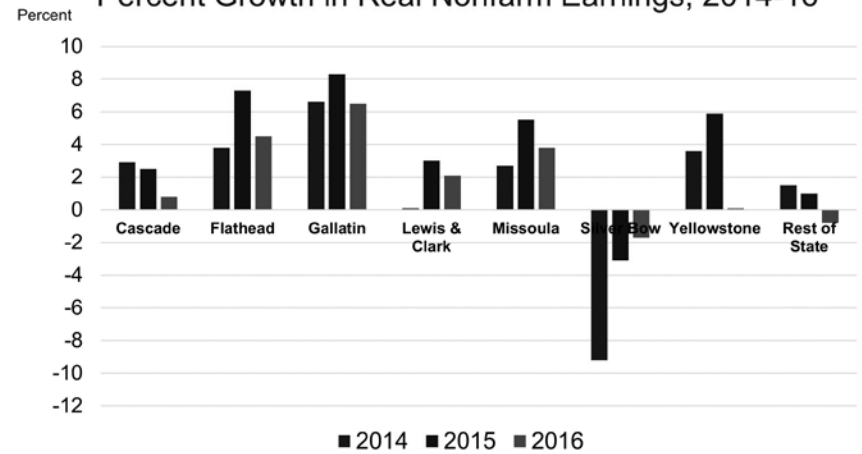
Source: U.S. Bureau of Economic Analysis



2018 Flathead Outlook

## Growth Slowdown in 2016 Widespread

Percent Growth in Real Nonfarm Earnings, 2014-16

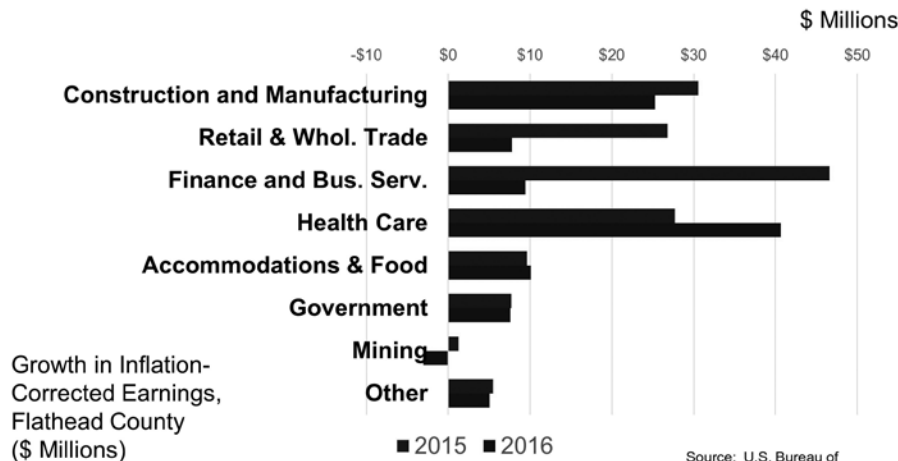


Source: U.S. Bureau of Economic Analysis



2018 Flathead Outlook

## Health Care Expanded Significantly in 2016



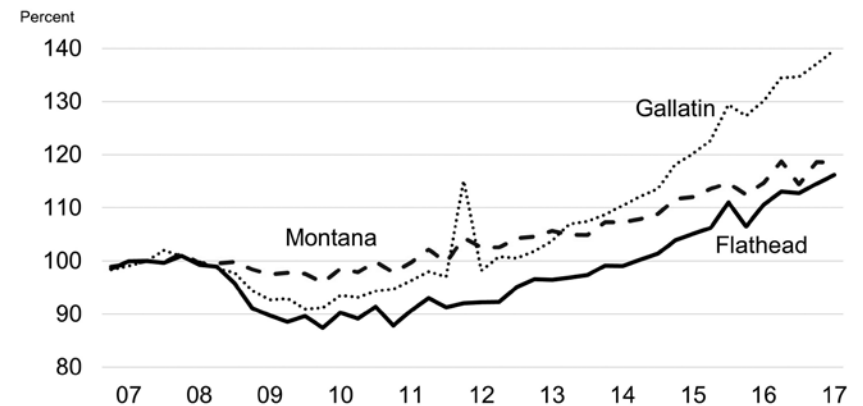
Source: U.S. Bureau of Economic Analysis



2018 Flathead Outlook

## Strong Wage Growth Continued in 2017

Inflation-Corrected Covered Wages, Index 2007=100



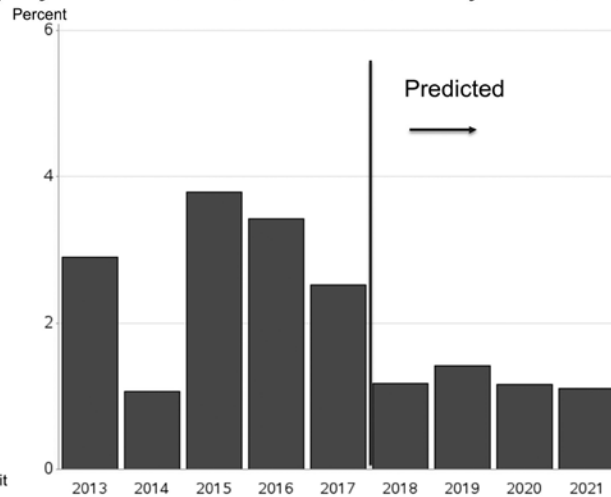
Seasonally adjusted by BBER  
Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages



2018 Flathead Outlook

## Outlook for Job Growth is Measured

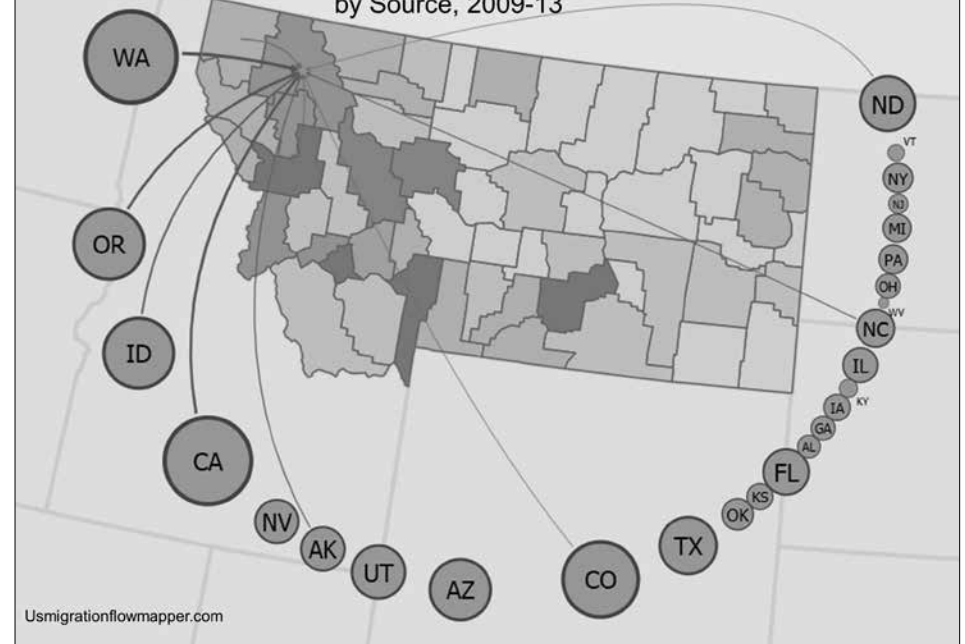
Employment Growth, Flathead County 2013-21



Source: IHS Markit

## In-Migration to Flathead County

by Source, 2009-13

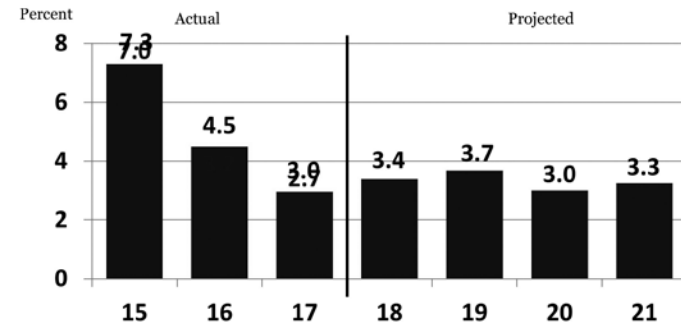


Usmigrationflowmapper.com

## Looking Ahead to 2018

- Health care expansion fastest in state
- 2017 was a good year for construction
- Glacier Park visitation, visitor spending on strong trajectory
- Manufacturing, tech development not as strong as some other parts of the state
- Favorable conditions for continued strong growth

## Growth in Nonfarm Earnings, Flathead County, 2015-2021



Source: BBER and U.S. Bureau of Economic Analysis

# The Outlook for Gallatin County

Patrick M. Barkey, Director  
Bureau of Bus. & Econ. Research



Gallatin Outlook

## Gallatin County Profile

Indicator	Value	State Rank
Total Population, 2016	104,502	3
Percent change since 2010	16.7%	2
Median age	33.2	53
Percent Aged 65 or Older	11.2%	
Percent with Bachelors Degree or Higher (Age 25+)	48.0%	1
Percent without Health Insurance Coverage, 2015	11.2%	53

Source: U.S. Census Bureau



Gallatin Outlook

## Gallatin County Profile

Indicator	Value	State Rank
Earnings per Job, 2016	\$44,611	9
Construction	\$63,276	5
Manufacturing	\$47,487	8
Retail Trade	\$41,960	5
Information	\$50,781	12

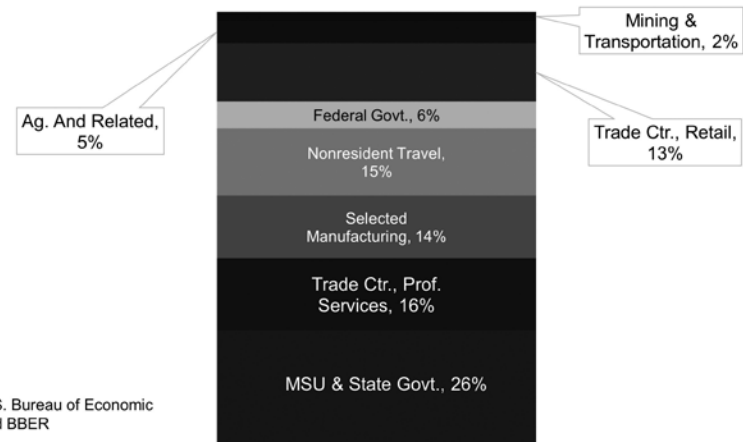
Source: U.S. Bureau of Economic Analysis



Gallatin Outlook

## Drivers of Economic Activity

Percent Share of Income in Basic Industries



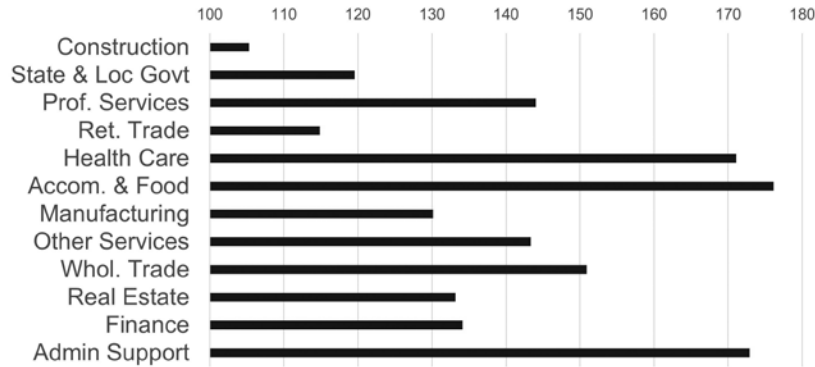
Source: U.S. Bureau of Economic Analysis and BBER



Gallatin Outlook

## What Has Grown Since 2007

Inflation Corrected Earnings in 2016 as Percent of 2007



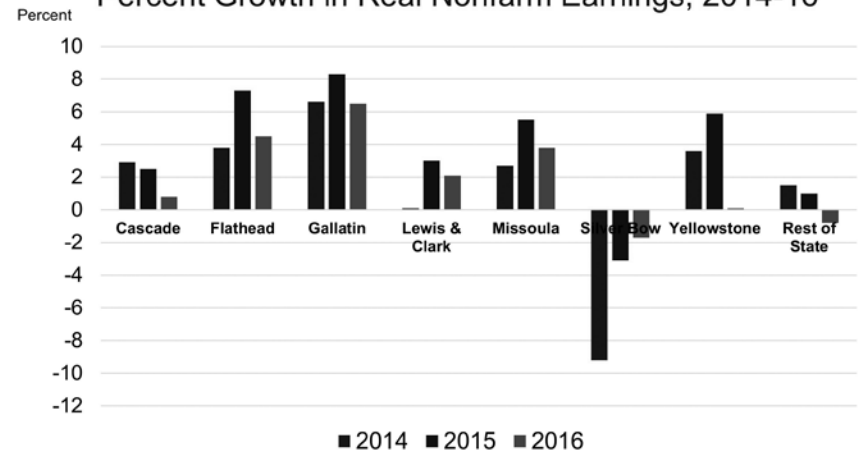
Source: U.S. Bureau of Economic Analysis



Gallatin Outlook

## Growth Slowdown in 2016 Widespread

Percent Growth in Real Nonfarm Earnings, 2014-16

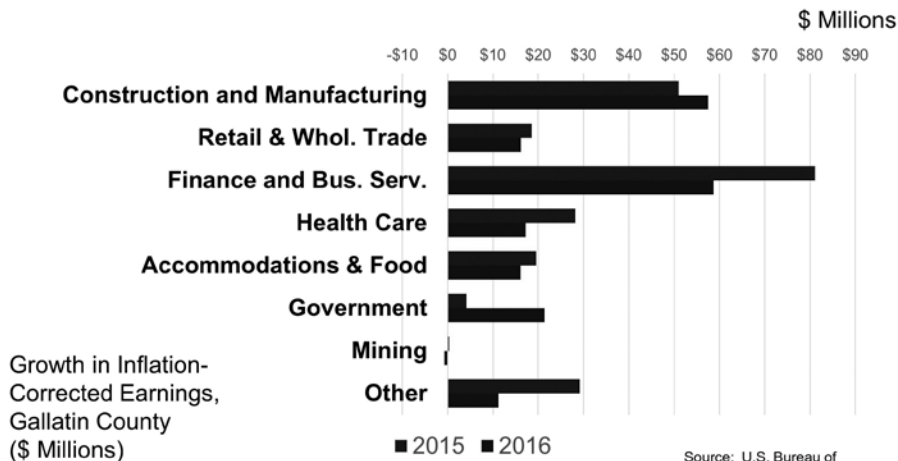


Source: U.S. Bureau of Economic Analysis



Gallatin Outlook

## Broad Based Expansion Continued in 2016



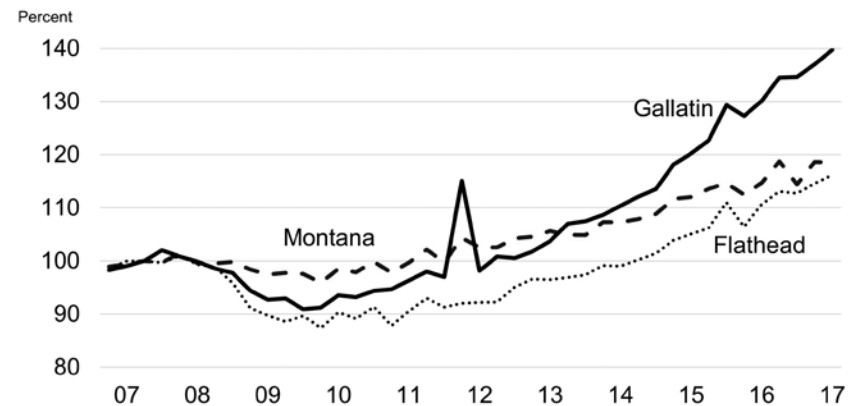
Source: U.S. Bureau of Economic Analysis



Gallatin Outlook

## Strong Wage Growth Continued in 2017

Inflation-Corrected Covered Wages, Index 2007=100



Seasonally adjusted by BBER

Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages

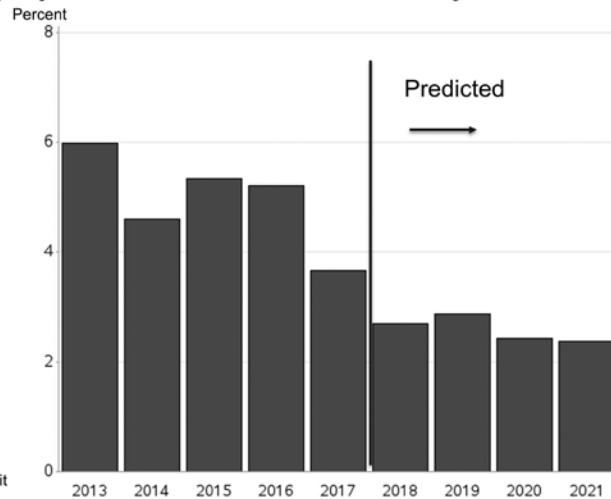


Gallatin Outlook



## Outlook for Job Growth is Slower

Employment Growth, Gallatin County 2013-21



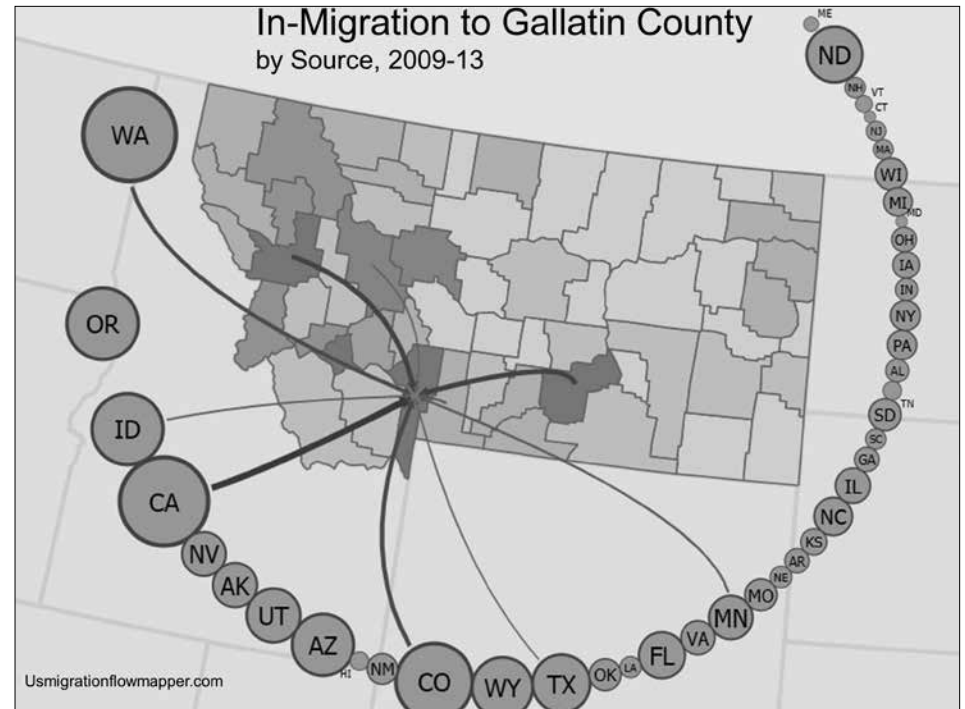
Source: IHS Markit



Gallatin Outlook

## In-Migration to Gallatin County

by Source, 2009-13



Usmigrationflowmapper.com

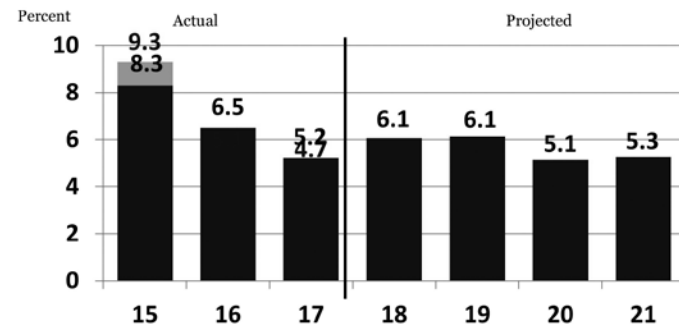
## Looking Ahead to 2018

- Very fast growth continued in 2017
- Construction footprint is very large
- Health care hitting its stride
- Manufacturing, tech development spreading beyond Bozeman
- Very few holes to be found in growth profile
- Expect strong growth to continue



Gallatin Outlook

## Growth in Nonfarm Earnings, Gallatin County, 2015-2021



Source: BBER and U.S. Bureau of Economic Analysis



Gallatin Outlook

# The Outlook for Hill County

Patrick M. Barkey, Director  
Bureau of Bus. & Econ. Research



2018 Hill Outlook

## Hill County Profile

Indicator	Value	State Rank
Total Population, 2016	16,542	11
Percent change since 2010	2.8%	24
Median age	34.5	51
Percent Aged 65 or Older	13.9%	
Percent with Bachelors Degree or Higher (Age 25+)	23.5%	39
Percent without Health Insurance Coverage, 2015	16.3%	46

Source: U.S. Census Bureau



2018 Hill Outlook

## Fergus County Profile

Indicator	Value	State Rank
Earnings per Job, 2016	\$43,455	11
Construction	\$46,945	22
Manufacturing	\$18,528	28
Retail Trade	\$26,422	26
Information	\$68,121	1

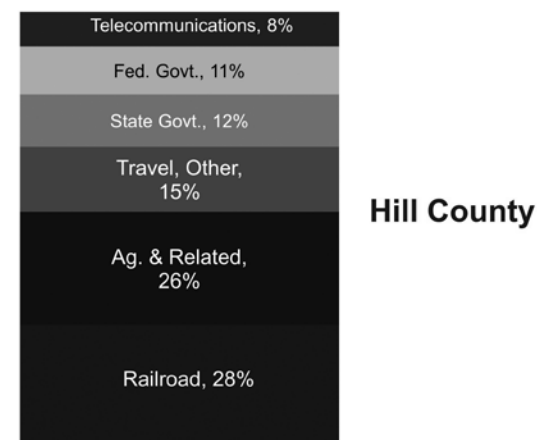
Source: U.S. Bureau of Economic Analysis



2018 Hill Outlook

## Drivers of Economic Activity

Percent Share of Income in Basic Industries



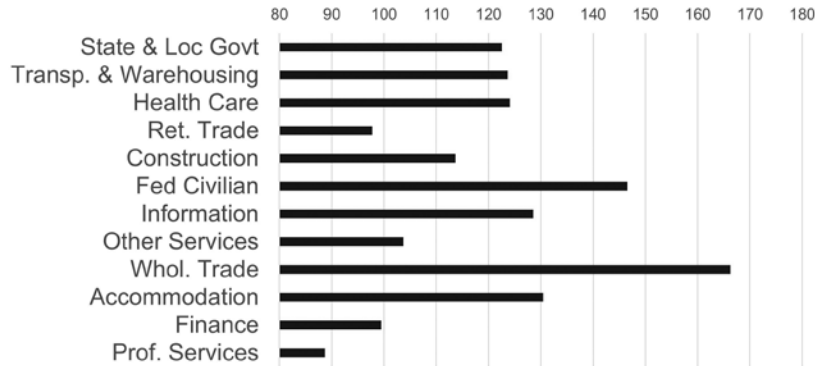
Source: U.S. Bureau of Economic Analysis and BBER



2018 Hill Outlook

## What Has Grown Since 2007

Inflation Corrected Earnings in 2016 as Percent of 2007



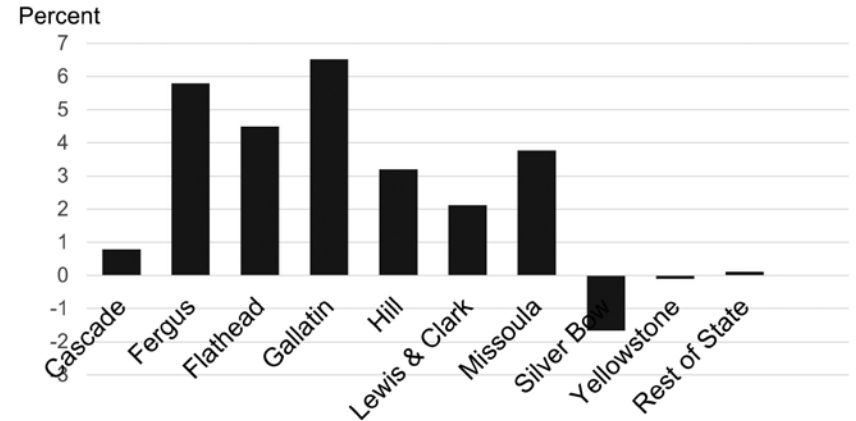
Source: U.S. Bureau of Economic Analysis



2018 Hill Outlook

## Uneven Pattern of Growth in 2016

Percent Growth in Inflation-Corrected Nonfarm Earnings

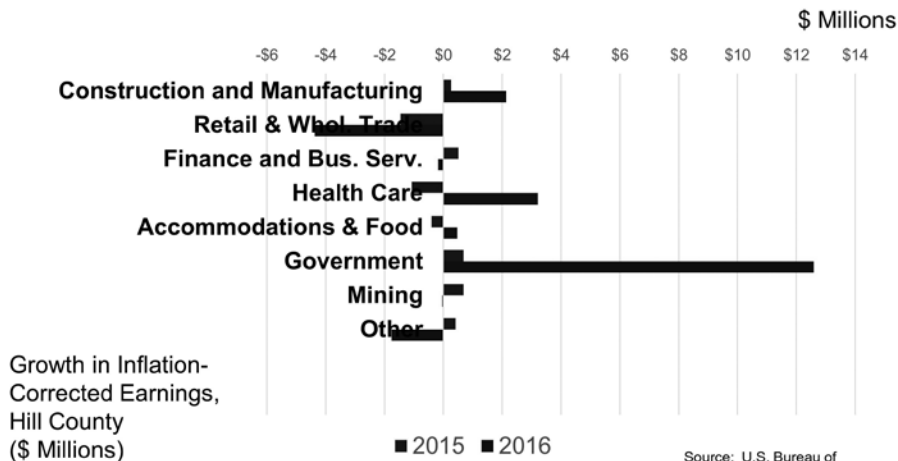


Source: U.S. Bureau of Economic Analysis



2018 Hill Outlook

## Local Government Expansion an Outlier



Growth in Inflation-Corrected Earnings, Hill County (\$ Millions)

■ 2015 ■ 2016

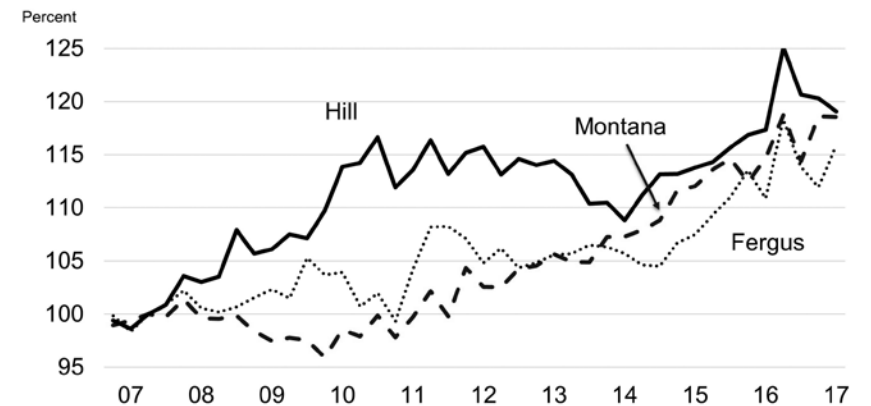
Source: U.S. Bureau of Economic Analysis



2018 Hill Outlook

## Wage Growth Erratic Since 2016

Inflation-Corrected Covered Wages, Index 2007=100



Seasonally adjusted by BBER

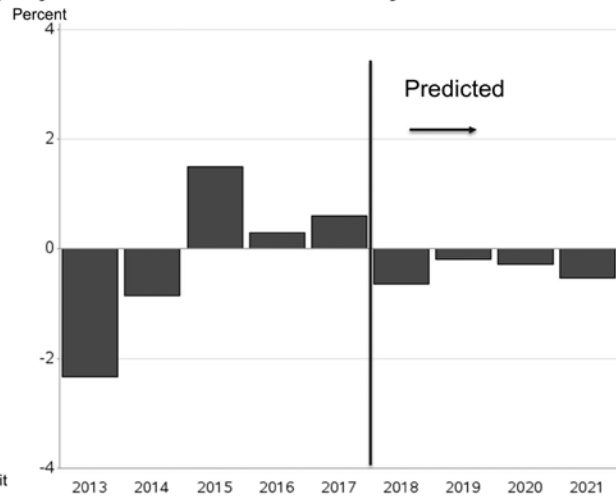
Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages



2018 Hill Outlook

## Outlook for Job Growth is Pessimistic

Employment Growth, Hill County 2013-21



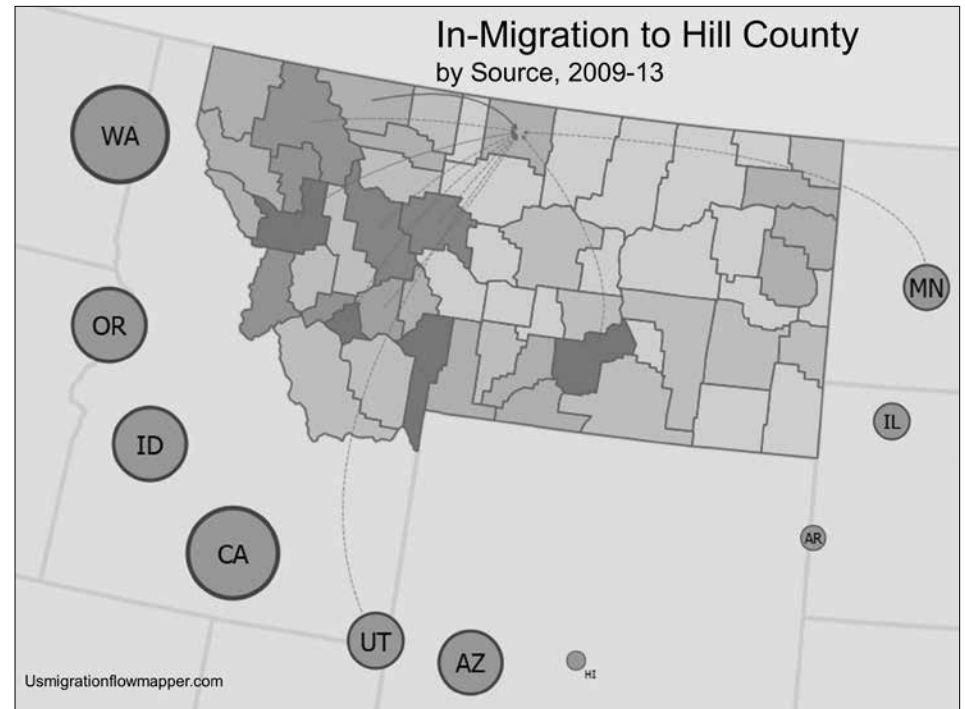
Source: IHS Markit



2018 Hill Outlook

## In-Migration to Hill County

by Source, 2009-13



Usmigrationflowmapper.com

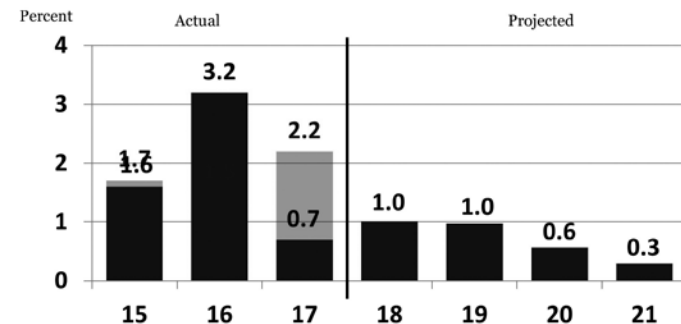
## Looking Ahead to 2018

- Government growth offset poor private sector performance in 2016
- Measured recovery in rail freight began in 2017
- Weaker Canadian dollar, e-commerce competition have challenged retail
- Federal growth is a wild card
- Sparks for better growth hard to find



2018 Hill Outlook

## Growth in Nonfarm Earnings, Hill County, 2015-2021



Source: BBER and U.S. Bureau of Economic Analysis



2018 Hill Outlook

# The Outlook for Lewis and Clark County

Patrick M. Barkey, Director  
Bureau of Bus. & Econ. Research



2018 Lewis and Clark Outlook

## Lewis and Clark County Profile

Indicator	Value	State Rank
Total Population, 2016	67,682	6
Percent change since 2010	6.1%	12
Median age	41.2	40
Percent Aged 65 or Older	16.1%	
Percent with Bachelors Degree or Higher (Age 25+)	37.5%	7
Percent without Health Insurance Coverage, 2015	10.6%	55

Source: U.S. Census Bureau



2018 Lewis and Clark Outlook

## Lewis and Clark County Profile

Indicator	Value	State Rank
Earnings per Job, 2016	\$47,952	6
Construction	\$52,419	17
Manufacturing	\$48,751	7
Retail Trade	\$29,184	23
Transportation and Warehousing	\$44,623	19
Information	\$51,940	10

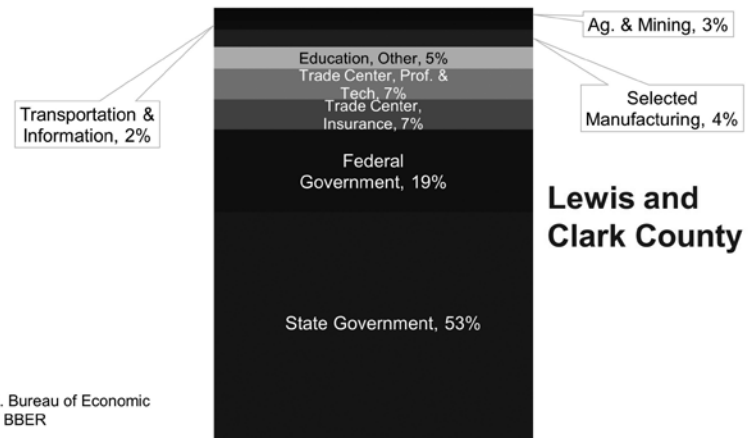
Source: U.S. Bureau of Economic Analysis



2018 Lewis and Clark Outlook

## Drivers of Economic Activity

Percent Share of Income in Basic Industries



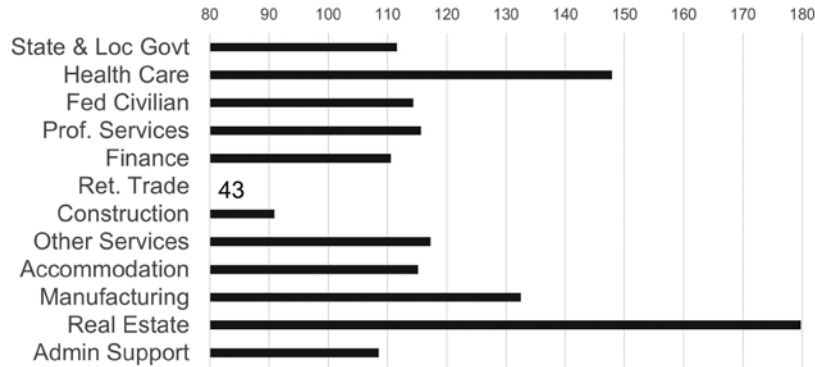
Source: U.S. Bureau of Economic Analysis and BBER



2018 Lewis and Clark Outlook

## What Has Grown Since 2007

Inflation Corrected Earnings in 2016 as Percent of 2007



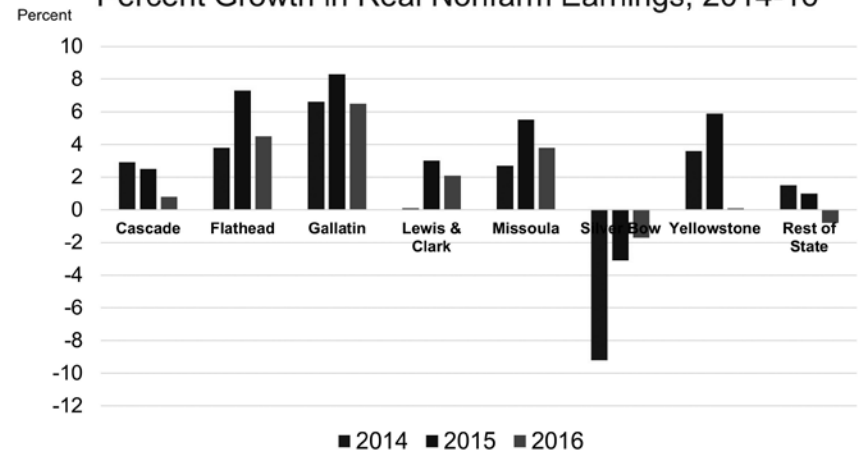
Source: U.S. Bureau of Economic Analysis



2018 Lewis and Clark Outlook

## Growth Slowdown in 2016 Widespread

Percent Growth in Real Nonfarm Earnings, 2014-16

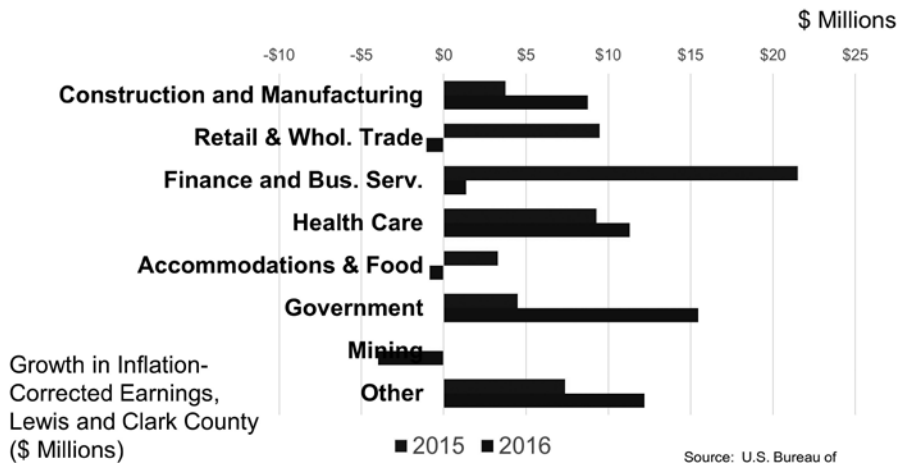


Source: U.S. Bureau of Economic Analysis



2018 Lewis and Clark Outlook

## Government Expanded Significantly in 2016



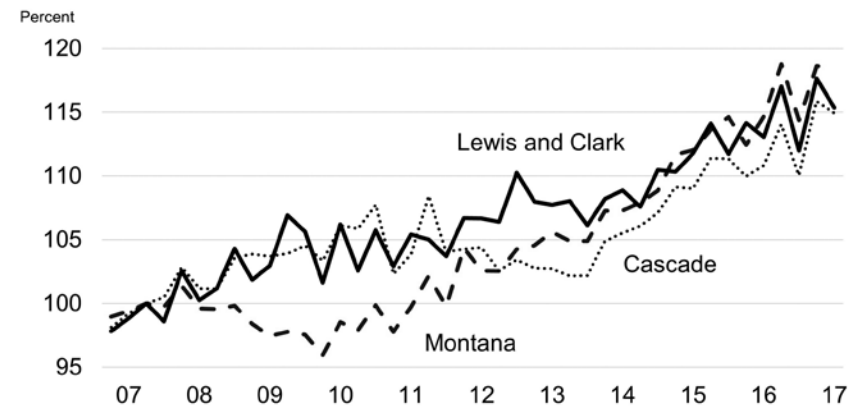
Source: U.S. Bureau of Economic Analysis



2018 Lewis and Clark Outlook

## Recent Wage Growth More Erratic

Inflation-Corrected Covered Wages, Index 2007=100



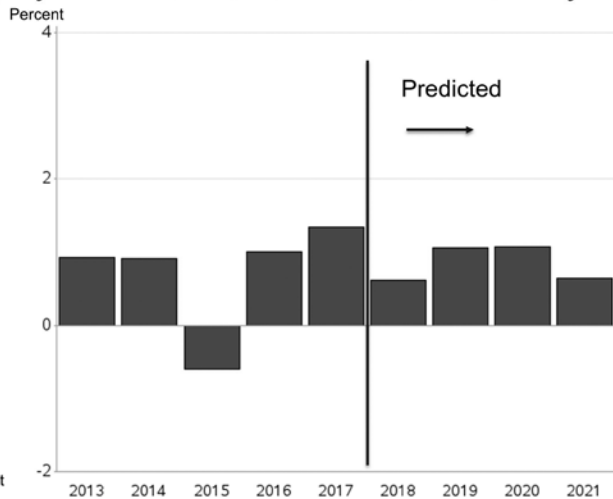
Seasonally adjusted by BBER  
Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages



2018 Lewis and Clark Outlook

## Steady Job Growth Expected

Employment Growth, Lewis and Clark County 2013-21



Source: IHS Markit



2018 Lewis and Clark Outlook

## In-Migration to Lewis and Clark County by Source, 2009-13



Usmigrationflowmapper.com

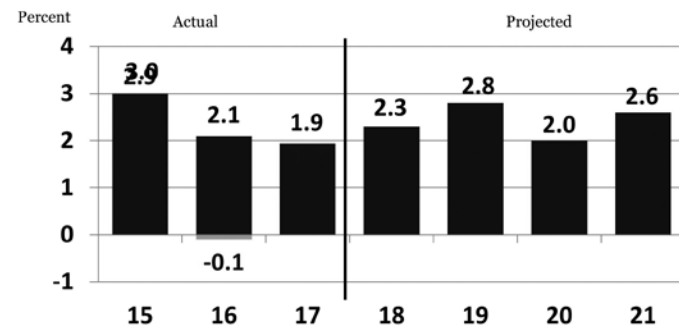
## Looking Ahead to 2018

- A struggle to hit faster growth mark
- Growth hinges on growth in state government
- Construction flying under the radar to perform well
- Visitor based businesses performing well
- Professional sectors underperforming
- State spending will restrain future growth



2018 Lewis and Clark Outlook

## Growth in Nonfarm Earnings, Lewis and Clark County, 2015-2021



Source: BBER and U.S. Bureau of Economic Analysis



2018 Lewis and Clark Outlook

# The Outlook for Missoula and Ravalli Counties

Patrick M. Barkey, Director  
Bureau of Bus. & Econ. Research



2018 Missoula and Ravalli Outlook

## Missoula County Profile

Indicator	Value	State Rank
Total Population, 2016	116,130	2
Percent change since 2010	6.2%	11
Median age	35.3	50
Percent Aged 65 or Older	13.6%	
Percent with Bachelors Degree or Higher (Age 25+)	41.8%	2
Percent without Health Insurance Coverage, 2015	12.1%	48

Source: U.S. Census Bureau



2018 Missoula and Ravalli Outlook

## Missoula County Profile

Indicator	Value	State Rank
Earnings per Job, 2016	\$43,410	9
Construction	\$54,660	13
Manufacturing	\$43,388	12
Retail Trade	\$31,501	17
Transportation and Warehousing	\$57,028	13
Information	\$54,112	9

Source: U.S. Bureau of Economic Analysis



2018 Missoula and Ravalli Outlook

## Ravalli County Profile

Indicator	Value	State Rank
Total Population, 2016	42,088	7
Percent change since 2010	4.7%	13
Median age	48.1	18
Percent Aged 65 or Older	22.8%	
Percent with Bachelors Degree or Higher (Age 25+)	25.8%	16
Percent without Health Insurance Coverage, 2015	19.3%	12

Source: U.S. Census Bureau



2018 Missoula and Ravalli Outlook



## Ravalli County Profile

Indicator	Value	State Rank
Earnings per Job, 2016	\$31,020	46
Construction	\$43,445	29
Manufacturing	\$33,139	15
Retail Trade	\$20,889	43
Information	\$26,500	30

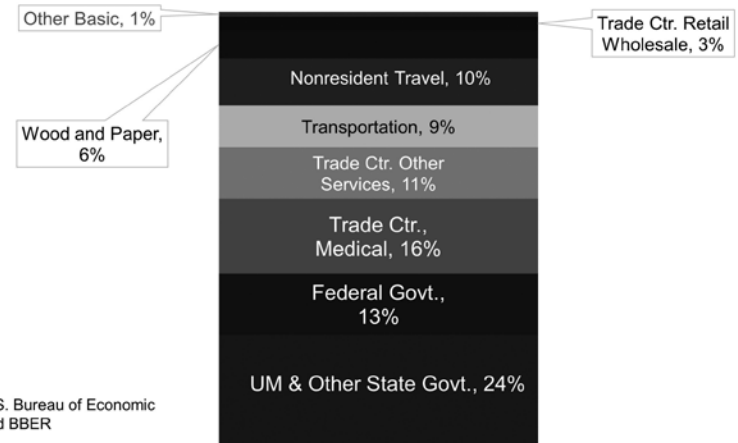
Source: U.S. Bureau of Economic Analysis



2018 Missoula and Ravalli Outlook

## Drivers of Economic Activity

### Percent Share of Income in Basic Industries



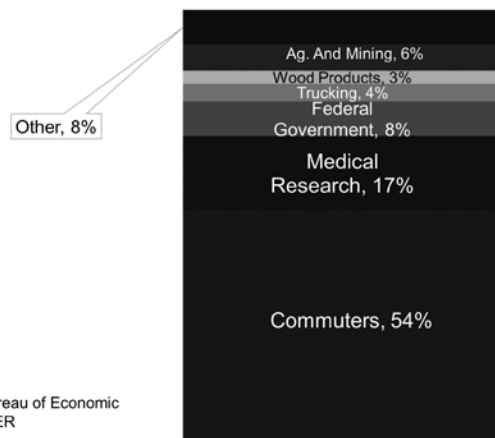
Source: U.S. Bureau of Economic Analysis and BBER



2018 Missoula and Ravalli Outlook

## Drivers of Economic Activity

### Percent Share of Income in Basic Industries



Source: U.S. Bureau of Economic Analysis and BBER

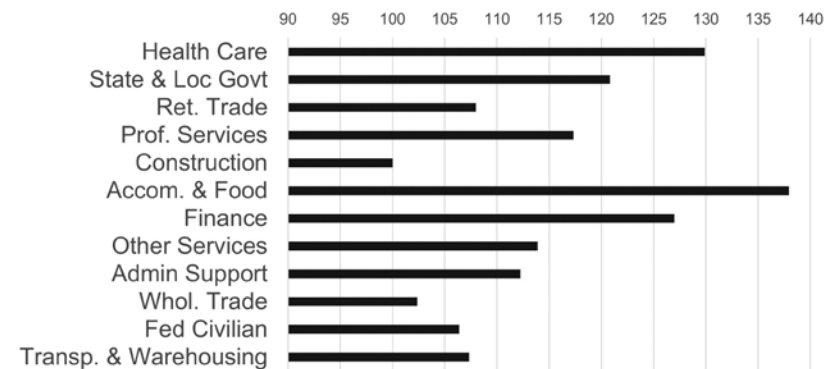


2018 Missoula and Ravalli Outlook

## What Has Grown Since 2007

### Inflation Corrected Earnings in 2016 as Percent of 2007

#### Missoula County



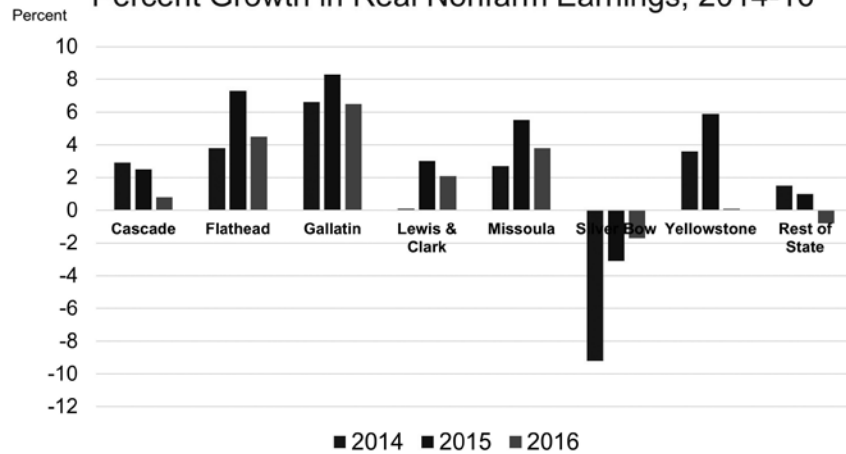
Source: U.S. Bureau of Economic Analysis



2018 Missoula and Ravalli Outlook

## Growth Slowdown in 2016 Widespread

Percent Growth in Real Nonfarm Earnings, 2014-16



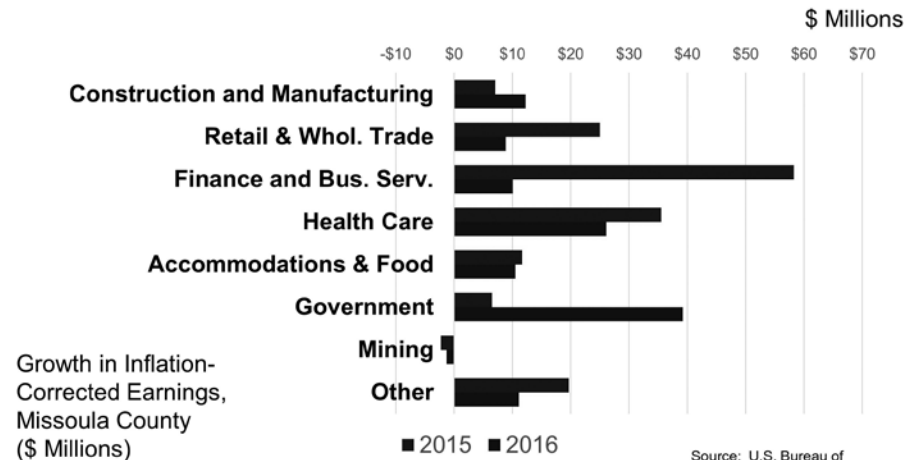
Source: U.S. Bureau of Economic Analysis



2018 Missoula and Ravalli Outlook

## Government Expanded Significantly in 2016

Missoula County



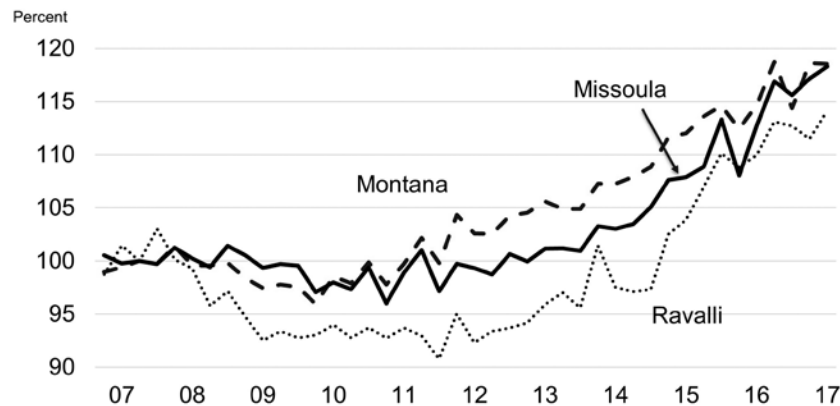
Source: U.S. Bureau of Economic Analysis



2018 Missoula and Ravalli Outlook

## Strong Wage Growth Continued in 2017

Inflation-Corrected Covered Wages, Index 2007=100



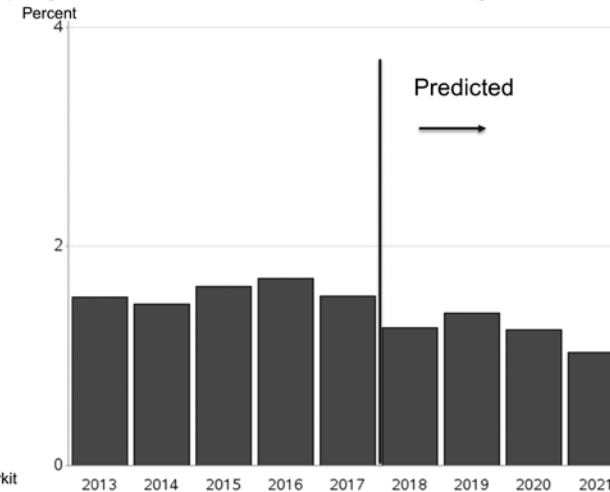
Seasonally adjusted by BBER  
Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages



2018 Missoula and Ravalli Outlook

## Steady Job Growth Expected

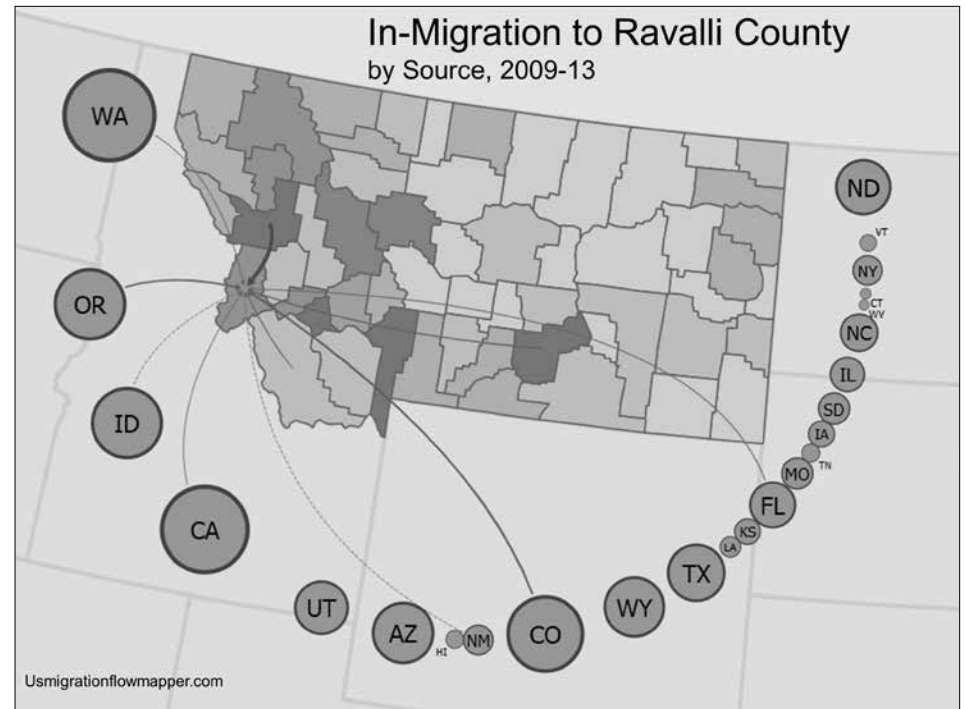
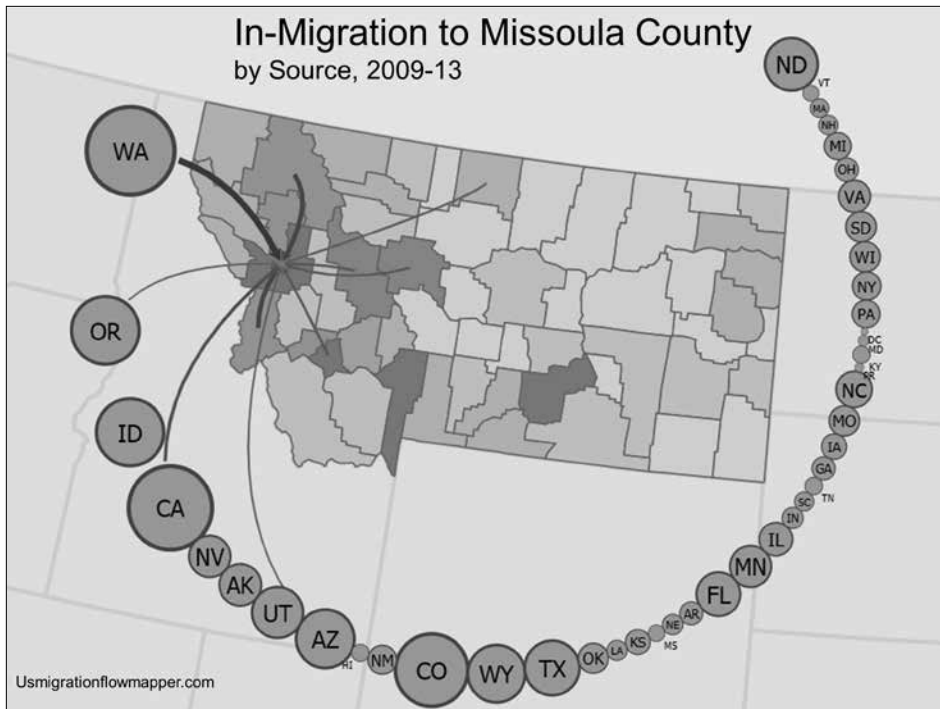
Employment Growth, Missoula County 2013-21



Source: IHS Markit



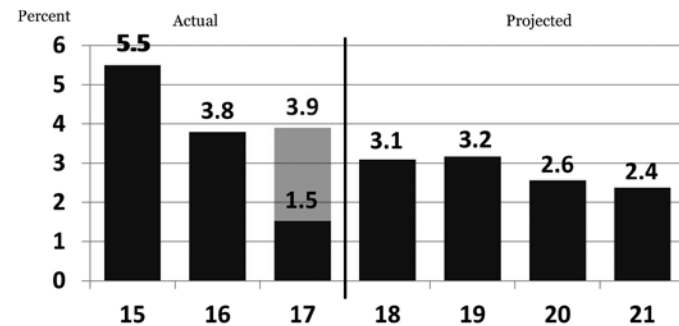
2018 Missoula and Ravalli Outlook



## Looking Ahead to 2018

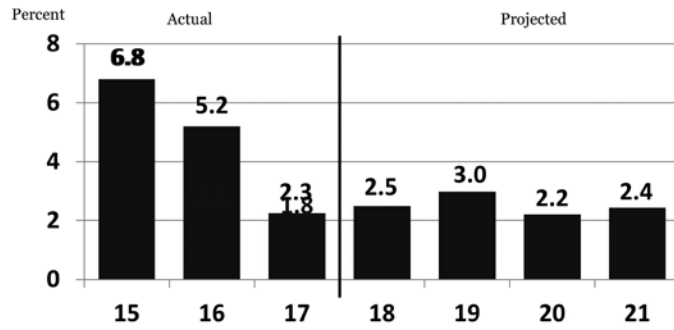
- Missoula's recent growth edging closer to state leaders
- Commercial construction, health care expanding – are they sustainable?
- UM's woes have not yet registered in the data
- Tech development is moving to the forefront
- Growth will be challenged by UM, fallback in construction activity

## Growth in Nonfarm Earnings, Missoula County, 2015-2021



Source: BBER and U.S. Bureau of Economic Analysis

## Growth in Nonfarm Earnings, Ravalli County, 2015-2021



Source: BBER and U.S. Bureau of Economic Analysis

# The Outlook for Silver Bow County and Southwestern Montana

Patrick M. Barkey, Director  
Bureau of Bus. & Econ. Research



2018 Silver Bow Outlook

## Silver Bow County Profile

Indicator	Value	State Rank
Total Population, 2016	34,553	8
Percent change since 2010	1.0%	33
Median age	40.7	42
Percent Aged 65 or Older	17.1%	
Percent with Bachelors Degree or Higher (Age 25+)	25.9%	14
Percent without Health Insurance Coverage, 2015	12.5%	47

Source: U.S. Census Bureau



2018 Silver Bow Outlook

## Silver Bow County Profile

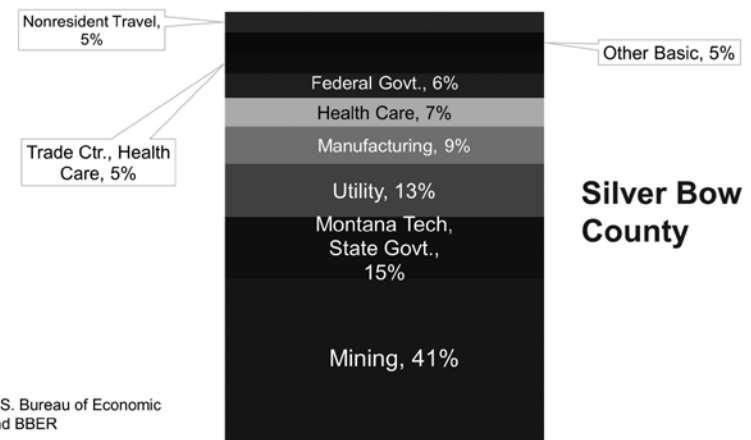
Indicator	Value	State Rank
Earnings per Job, 2016	\$52,912	2
Mining	\$279,392	1
Construction	\$45,244	26
Manufacturing	\$61,243	3
Retail Trade	\$49,945	3
Information	\$42,429	18

Source: U.S. Bureau of Economic Analysis



2018 Silver Bow Outlook

## Drivers of Economic Activity Percent Share of Income in Basic Industries



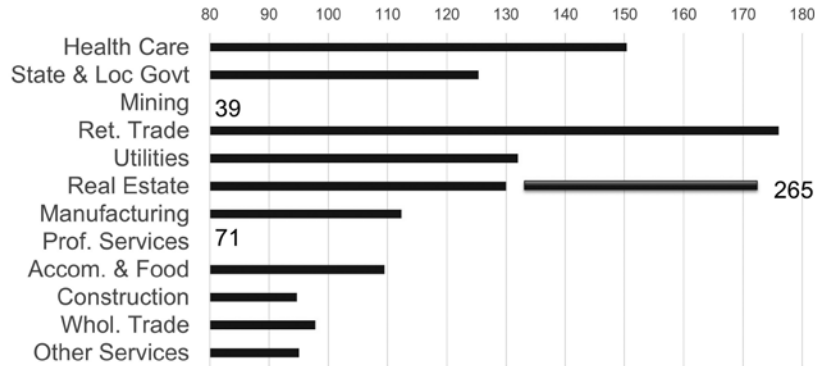
Source: U.S. Bureau of Economic Analysis and BBER



2018 Silver Bow Outlook

## What Has Grown Since 2007

Inflation Corrected Earnings in 2016 as Percent of 2007



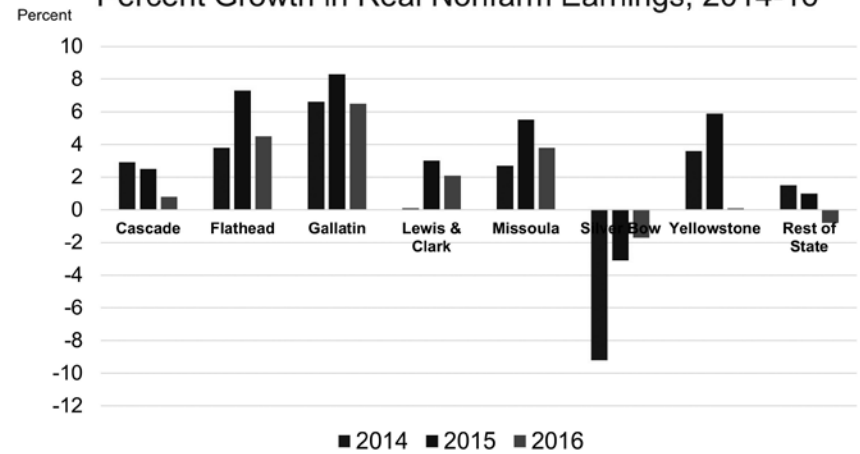
Source: U.S. Bureau of Economic Analysis



2018 Silver Bow Outlook

## Growth Slowdown in 2016 Widespread

Percent Growth in Real Nonfarm Earnings, 2014-16



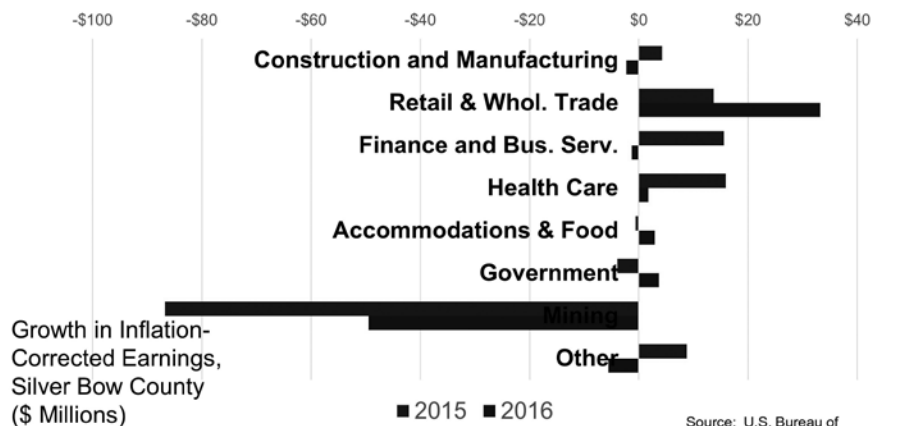
Source: U.S. Bureau of Economic Analysis



2018 Silver Bow Outlook

## Mining Setbacks Overshadow Gains Elsewhere

\$ Millions



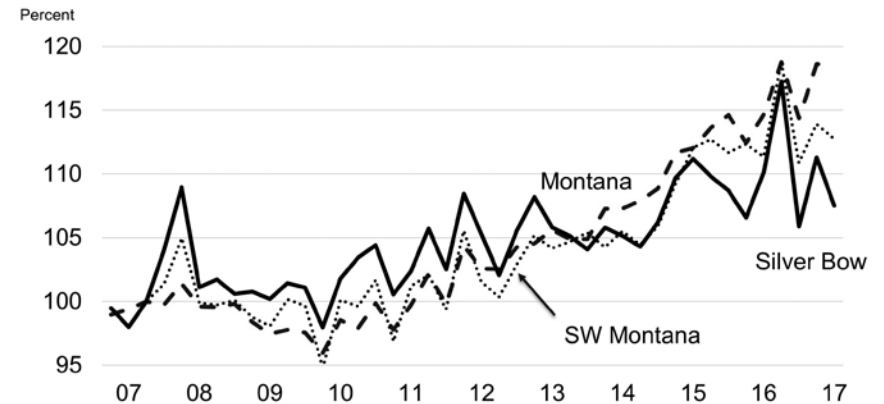
Source: U.S. Bureau of Economic Analysis



2018 Silver Bow Outlook

## Recent Wage Growth Has Been Weak

Inflation-Corrected Covered Wages, Index 2007=100



Seasonally adjusted by BBER

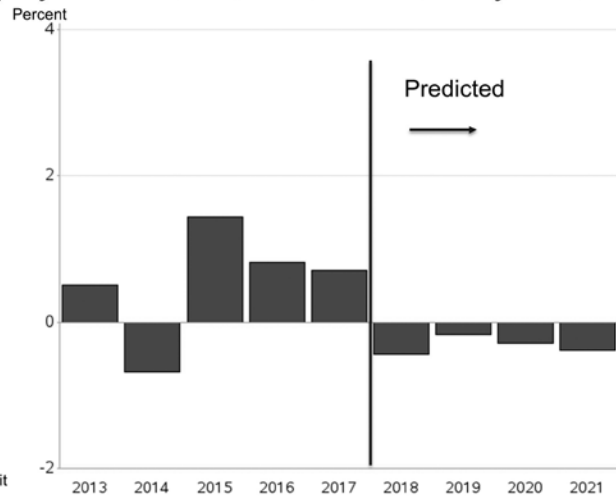
Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages



2018 Silver Bow Outlook

## Job Growth Forecast is Pessimistic

Employment Growth, Silver Bow County 2013-21



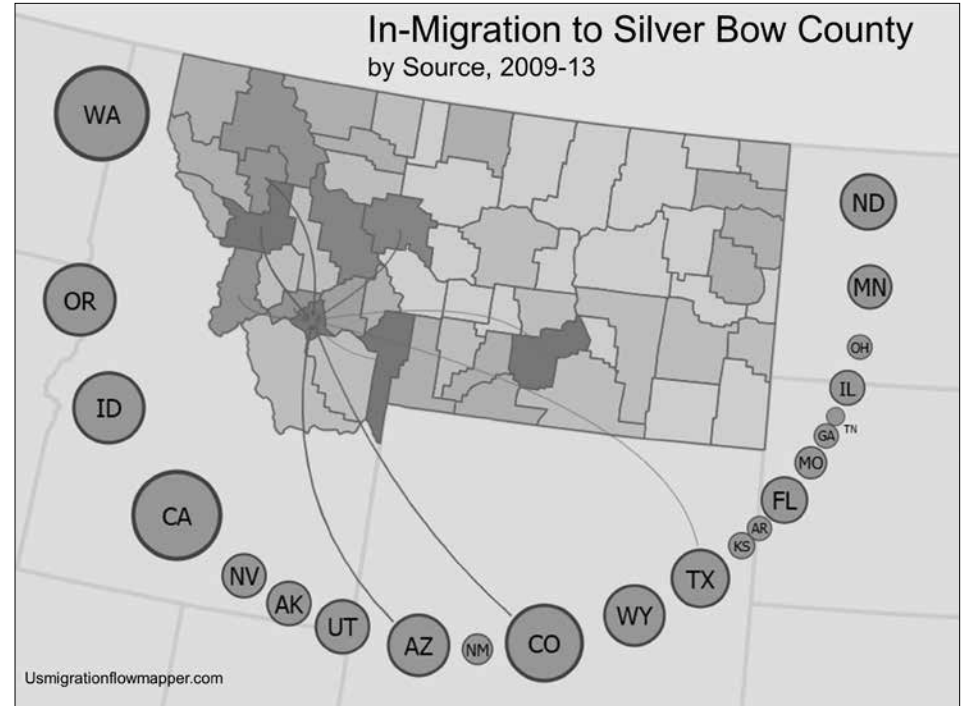
Source: IHS Markit



2018 Silver Bow Outlook

## In-Migration to Silver Bow County

by Source, 2009-13



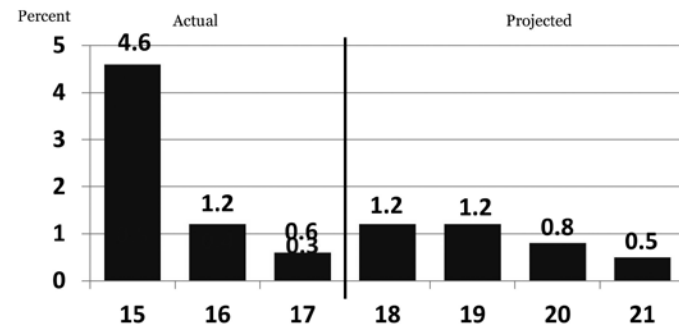
## Looking Ahead to 2018

- Worst of the commodity price bust appears to be over
- Employment is up by 50 percent since the low point of the early 1990s
- Recent success in visitor spending registering in the data
- Weaknesses in health care, construction stand out
- Continued slow growth is expected



2018 Silver Bow Outlook

## Growth in Nonfarm Earnings, Southwestern Montana, 2015-2021



Source: BBER and U.S. Bureau of Economic Analysis



2018 Silver Bow Outlook

# The Outlook for Yellowstone County

Patrick M. Barkey, Director  
Bureau of Bus. & Econ. Research



2018 Yellowstone Outlook

## Yellowstone County Profile

Indicator	Value	State Rank
Total Population, 2016	158,437	1
Percent change since 2010	7.1%	10
Median age	38.2	46
Percent Aged 65 or Older	15.4%	
Percent with Bachelors Degree or Higher (Age 25+)	29.2%	8
Percent without Health Insurance Coverage, 2015	12.4%	46

Source: U.S. Census Bureau



2018 Yellowstone Outlook

## Yellowstone County Profile

Indicator	Value	State Rank
Earnings per Job, 2016	\$52,721	3
Mining	\$163,824	2
Utilities	\$115,482	7
Construction	\$64,327	3
Manufacturing	\$86,180	1
Retail Trade	\$32,300	13
Transportation and Warehousing	\$63,097	9

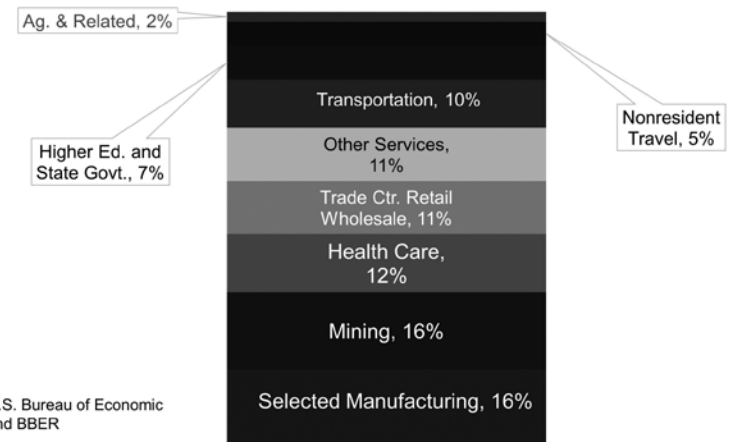
Source: U.S. Bureau of Economic Analysis



2018 Yellowstone Outlook

## Drivers of Economic Activity

Percent Share of Income in Basic Industries



Source: U.S. Bureau of Economic Analysis and BBER

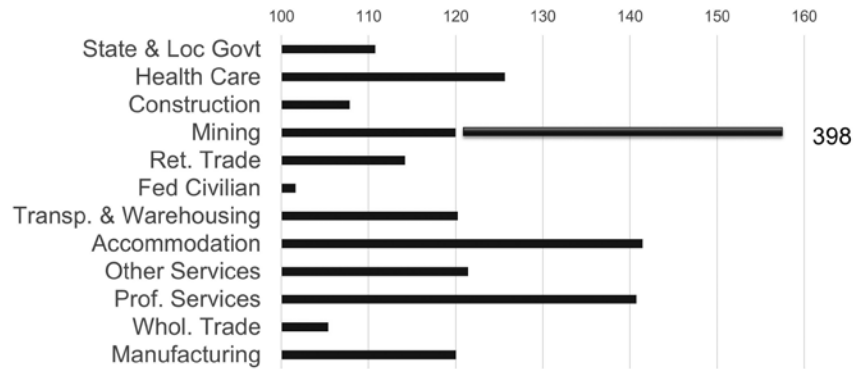


2018 Yellowstone Outlook



## What Has Grown Since 2007

Inflation Corrected Earnings in 2016 as Percent of 2007



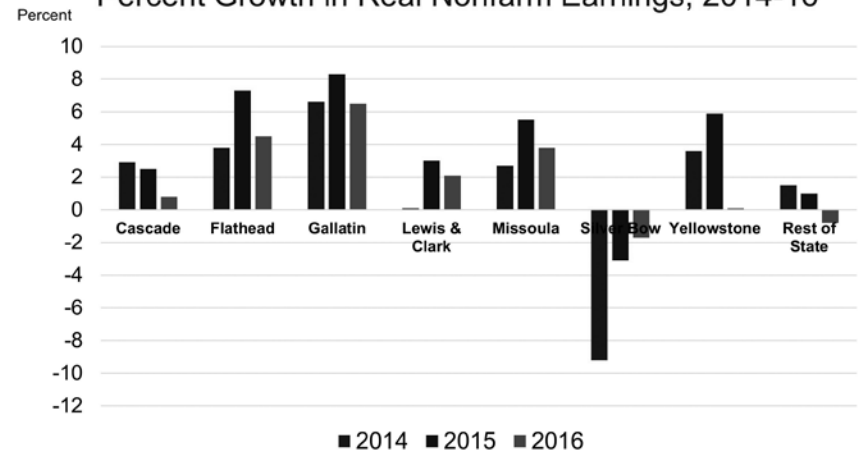
Source: U.S. Bureau of Economic Analysis



2018 Yellowstone Outlook

## Growth Slowdown in 2016 Widespread

Percent Growth in Real Nonfarm Earnings, 2014-16

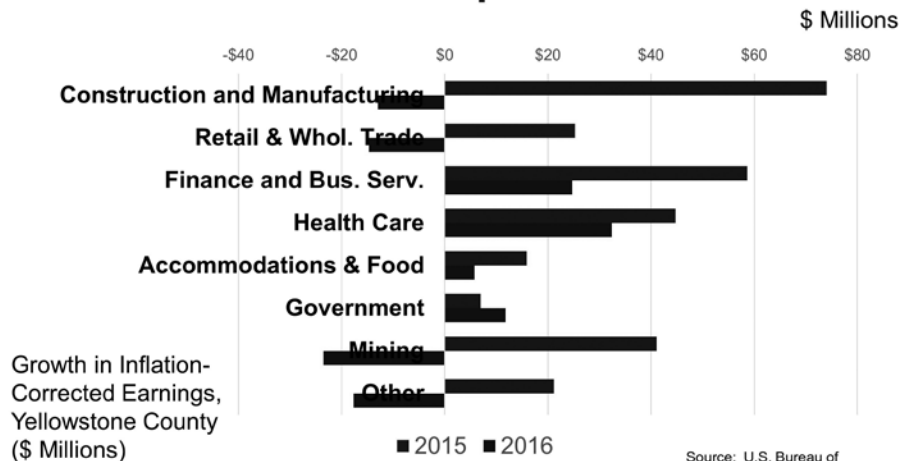


Source: U.S. Bureau of Economic Analysis



2018 Yellowstone Outlook

## Earnings Reversal in 2016 Was Widespread



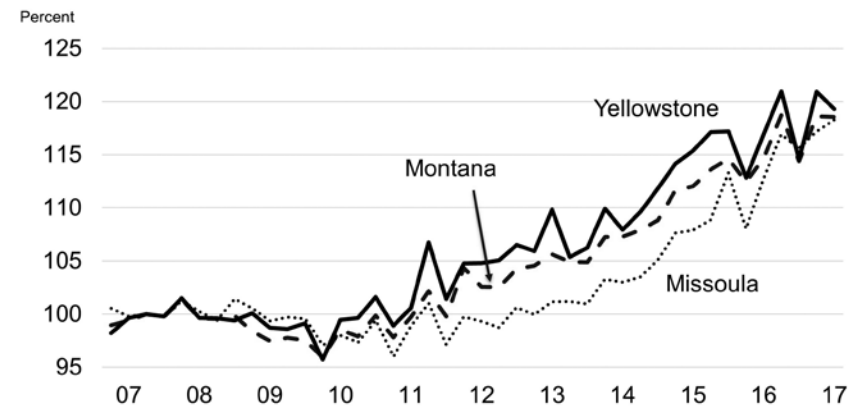
Source: U.S. Bureau of Economic Analysis



2018 Yellowstone Outlook

## Erratic Wage Growth Since 2016

Inflation-Corrected Covered Wages, Index 2007=100



Seasonally adjusted by BBER

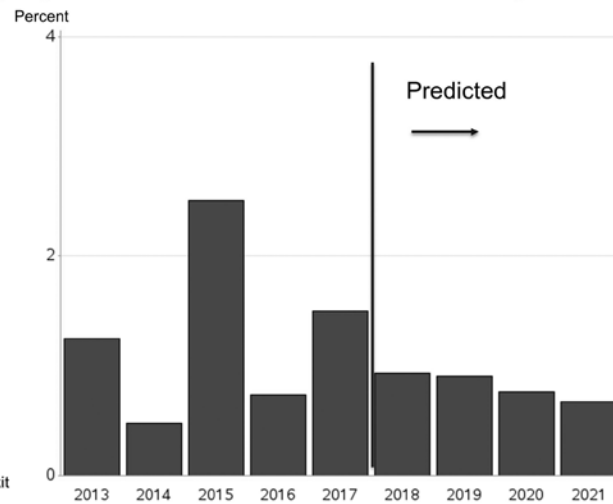
Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages



2018 Yellowstone Outlook

## Outlook for Job Growth is Measured

Employment Growth, Yellowstone County 2013-21



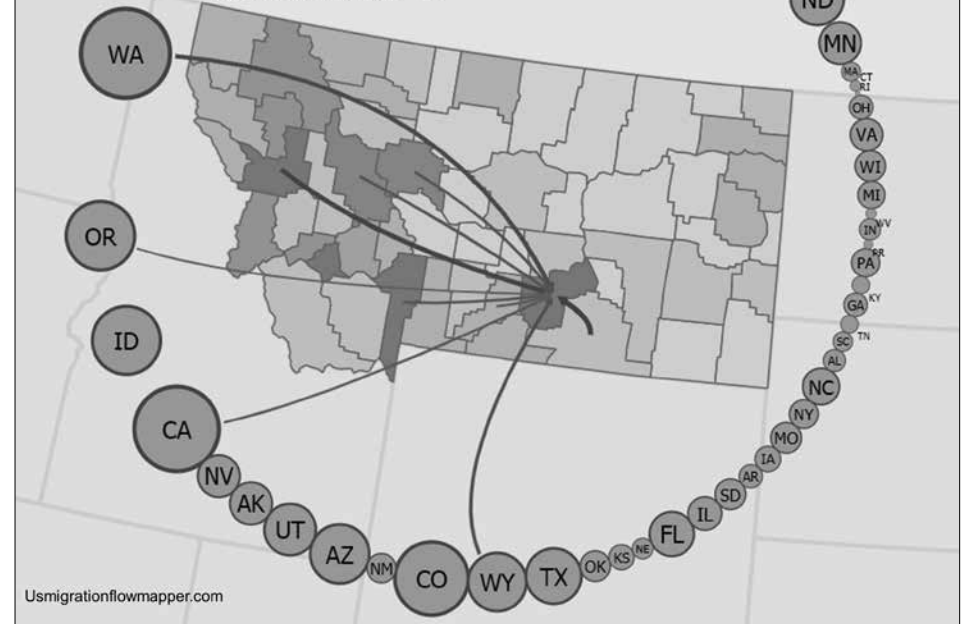
Source: IHS Markit



2018 Yellowstone Outlook

## In-Migration to Yellowstone County

by Source, 2009-13



Usmigrationflowmapper.com

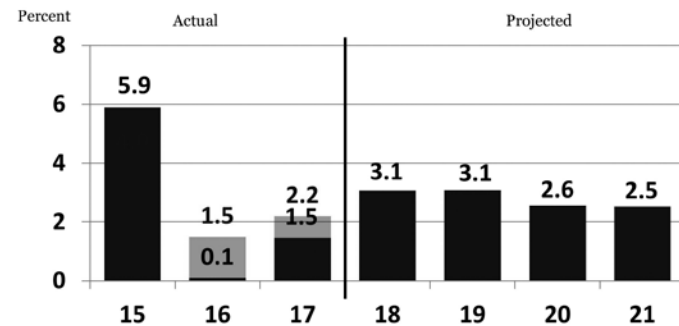
## Looking Ahead to 2018

- 2016 not quite as bad as earnings data suggest
- Construction, manufacturing did better in 2017
- Energy and agriculture woes in a four state area being felt in Billings
- Consolidation and uncertainty ahead for health care
- Growth not likely to exceed state average in years ahead



2018 Yellowstone Outlook

## Growth in Nonfarm Earnings, Yellowstone County, 2015-2021



Source: BBER and U.S. Bureau of Economic Analysis



2018 Yellowstone Outlook

# 2018 ECONOMIC OUTLOOK SEMINAR FEB 6, 2018

Local Report: Kalispell, MT



## DOWNTOWN

### 2017 Openings

Herberger's, 40,000 sq. ft. addition  
Montana Coffee Traders, 8,000 sq. ft.  
Blue Samurai Sushi Bar & Grill  
Noble Dance  
The Montana Scene  
Fuel Fitness  
Rival's Sports Bar

### 2018 Openings

Bias Brewing  
Fresh Life, 16,000 sq. ft.  
Sunrift Beer Company  
Vilya Spirits  
Scottibelli's  
First American Title  
Mudman Burgers



## DOWNTOWN



## RETAIL & RESTAURANTS

### 2017 Openings

Brass Taps  
Costa Vida  
Hobby Lobby  
Homegoods  
Staggering Ox  
McDonald's  
Kalispell Ford

### 2018 Openings

Harbor Freight  
Green Nissan  
Green Hyundai  
Whitefish Credit Union, Columbia Falls  
REI  
MOD Pizza  
Panera Bread  
Kobe Japanese Steak House  
Kay Jewelers  
T-Mobile



# RETAIL & RESTAURANTS



**KALISPELL**  
Chamber of Commerce  
Convention & Visitor Bureau

# INDUSTRIAL

## Glacier Rail Park

40 acre property off Whitefish Stage Road  
\$11 million construction by LHC, \$10m T.I.G.E.R. Grant  
Relocating CHS and Northwest Drywall  
Will remove railroad tracks through downtown Kalispell, add linear trail from Woodland Park and develop new connector streets.

## U.S. Optics

Leading company in firearm optics industry. Relocated from Southern California to Kalispell in September 2017.

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# INDUSTRIAL



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# EDUCATION & COMMUNITY

## 2017 Openings

Flathead Valley Community College Student Housing – 124 beds, \$7.8m  
Legends Field  
Bigfork High School - \$13m  
Glacier Park International Airport parking expansion – 224 new spaces, \$1m  
Flathead County Detention Center – 36 new beds, \$1.8m  
Whitefish City Hall and Parking, \$16m  
Kidsports, Phase 1

## 2018 Openings

Rankin Elementary School, \$15m  
Flathead County Fairgrounds update

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# EDUCATION & COMMUNITY



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# HOSPITALITY

## 2016 Openings

Marriott Springhill Suites, Kalispell  
Firebrand, Whitefish  
Hampton Inn & Suites, Whitefish  
Cedar Creek Lodge, Columbia Falls

## 2018 Openings

Marriott Towneplace, Whitefish  
Country Inn & Suites, Kalispell

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# COUNTRY INN & SUITES

**Location:** Glacier Park International Airport

**Est. Completion:** June 2018

**Size:** 62,000 sq. ft – 100 rooms

**Est. Cost:** \$5+ million

Also includes pads for restaurant & convenience store



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# MARRIOTT TOWNEPLACE

**Location:** Whitefish

**Est. Completion:** Summer 2018

**Size:** 63,171 sq. ft – 81 rooms

**Est. Cost:** \$7.3



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# HEALTH CARE

## 2017 Openings

Glacier View Professional Building

Immanuel Lutheran Communities Retreat at Buffalo Hill, \$4m

Immanuel Lutheran Communities Memory Lodge at Buffalo Hill, \$6.7

## 2018 Openings

Kalispell Regional Medical Center Emergency Room, \$14m

Montana Children's Medical Center, \$37.8m

Digestive Health Institute of Montana \$12.9m

Immanuel Lutheran Communities Villas at Buffalo Hill, \$14.5


Immanuel Lutheran Communities Skilled Care Center, \$3.2

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# HEALTH CARE



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THE FUTURE OF HIGHER EDUCATION  
BOB NYSTUEN

43rd Annual Economic Outlook Seminar

Grandpa Albert

"My grandparents further believed that in order to provide for the family if hard-times came, a college education for the eldest child could provide him a good job that would allow for them to support the Nystuen brood and preserve the family farm."



Albert and Marie Wedding Photos. July 3, 1913

43rd Annual Economic Outlook Seminar

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*We welcome constructive debate – but invalid critiques should not be allowed to cast a fag over the overarching value of our institutions.*

43rd Annual Economic Outlook Seminar

Montana's Outlook

*"For 125 years Montanans have chosen to invest in accessible and affordable high-quality education that allowed generations of students to find jobs, make sizable contributions both economically, socially and culturally, and create the one-of-a-kind fabric of our state."*


43rd Annual Economic Outlook Seminar

Thank  
You!

Bob Nystuen  
RegentNystuen@montana.edu




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# Montana Divisions



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## BNSF: We're Moving Montana's Economy

For more than a century, BNSF Railway has played an important role in Montana's economy. As the state's primary freight rail transporter, BNSF's 32,500-mile network links Montana's agricultural and energy industries to domestic and international markets. BNSF handles nearly 1.9 million carloads of freight in Montana annually.

Since 2013, BNSF has been instrumental in locating 30 new or expanded facilities in Montana, creating nearly 200 jobs and \$200 million in investments. Projects include the Port of Northern Montana in Shelby, Terracor Logistics in Bainville, and Columbia Grain in Sweetgrass.

Supporting BNSF's rail network in Montana are nearly 2,500 dedicated men and women who earn a combined payroll of nearly \$195 million.

The BNSF Foundation has contributed more than \$3.2 million in donations to Montana charities since 2010.





*We're keeping Montana  
picture-perfect.*

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