

The
**HIGH WAGE JOBS
PUZZLE**

Finding Montana's Place in the New Geography of Jobs



OUTLOOK 2017

42nd Annual Economic Outlook Seminar

Presented by NorthWestern Energy and the Bureau of Business and Economic Research



**BUREAU OF BUSINESS AND
ECONOMIC RESEARCH**
UNIVERSITY OF MONTANA

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

On average, Montanans earn less than people in other states. Is this a problem? If so, what might be done to raise wages in Montana? Will raising income make Montanans better off in the long run?

Outline of talk

How is Montana doing?

- *The fundamental question of regional economics – Do people want to live here?*
- *No place can be everything to everyone. Every place has at least one significant problem. What is (are) Montana's problem(s)? Are Montanans ok with their problem(s), or would we rather have different problems?*

What are Montana's prospects? Is it well positioned for the future?

- *The New Geography of Jobs -- Knowledge has become a more important driver of regional economic success.*
- *How large/successful is Montana's knowledge economy?*
- *Can Montana build a more robust knowledge economy?*
- *Does it want to?*

The fundamental question to ask
when evaluating a region:

Do people want to live here?

Where do people want to live?

People want to live in places that offer great job opportunities, an affordable cost of living, and an amazing quality of life.

Every place has at least one problem.

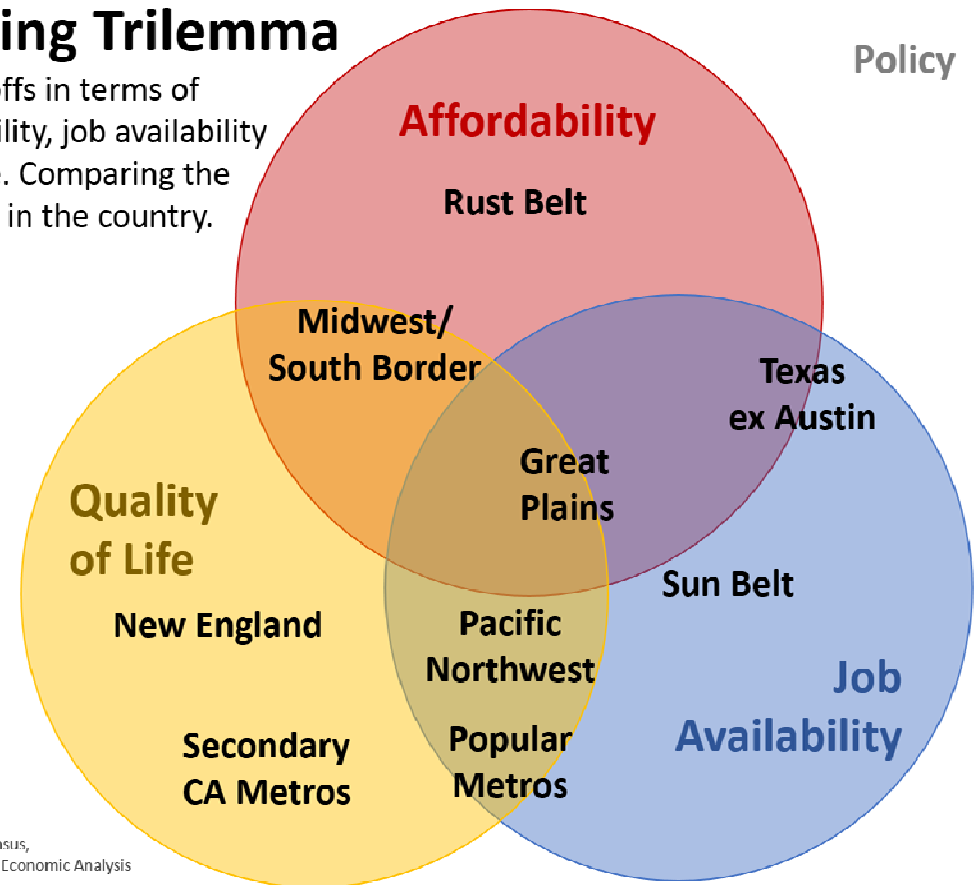
While all places want to offer great job opportunities, an affordable cost of living, and an amazing quality of life, no place can offer all three.

If a place did offer all three, it would attract lots of people – those people moving in would lower wages, increase the cost of life and/or reduce the quality of life.

As a result, every place has at least one problem.

The Housing Trilemma

Cities face tradeoffs in terms of housing affordability, job availability and quality of life. Comparing the 100 largest MSAs in the country.



Source: David Alboury, BFA, BI S, Census, IHS Global Insight, Oregon Office of Economic Analysis

Source: Lehner, J. (2016) <https://oregoneconomicanalysis.com/2016/06/08/the-housing-trilemma/>

Who do you want to be? What problem can you to tolerate? What tradeoffs are you willing to make?

What mix of job opportunities, cost of living, and quality of life do you want to offer? What problem(s) are you willing to accept?

Who can you be? What problems can actually be “solved” given constraints like climate, natural resources, topography, etc.?

How is Montana doing?

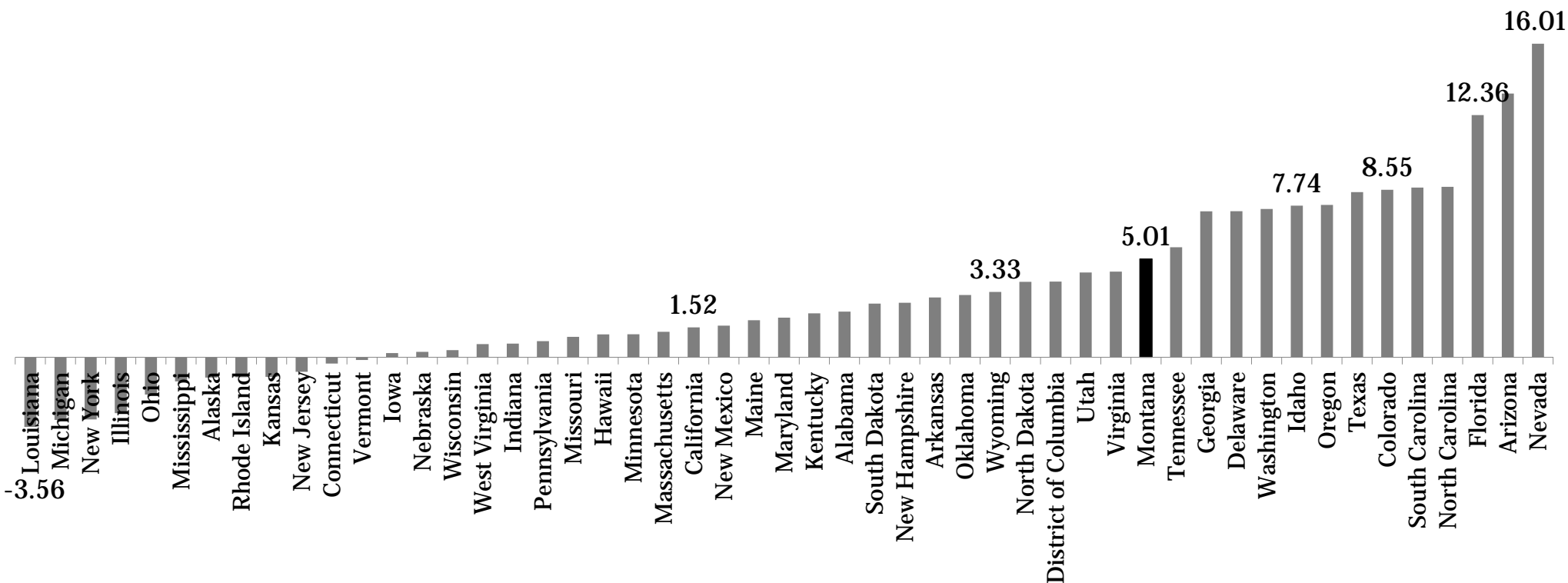
Do people want to live here?

What is (are) its problem(s)?

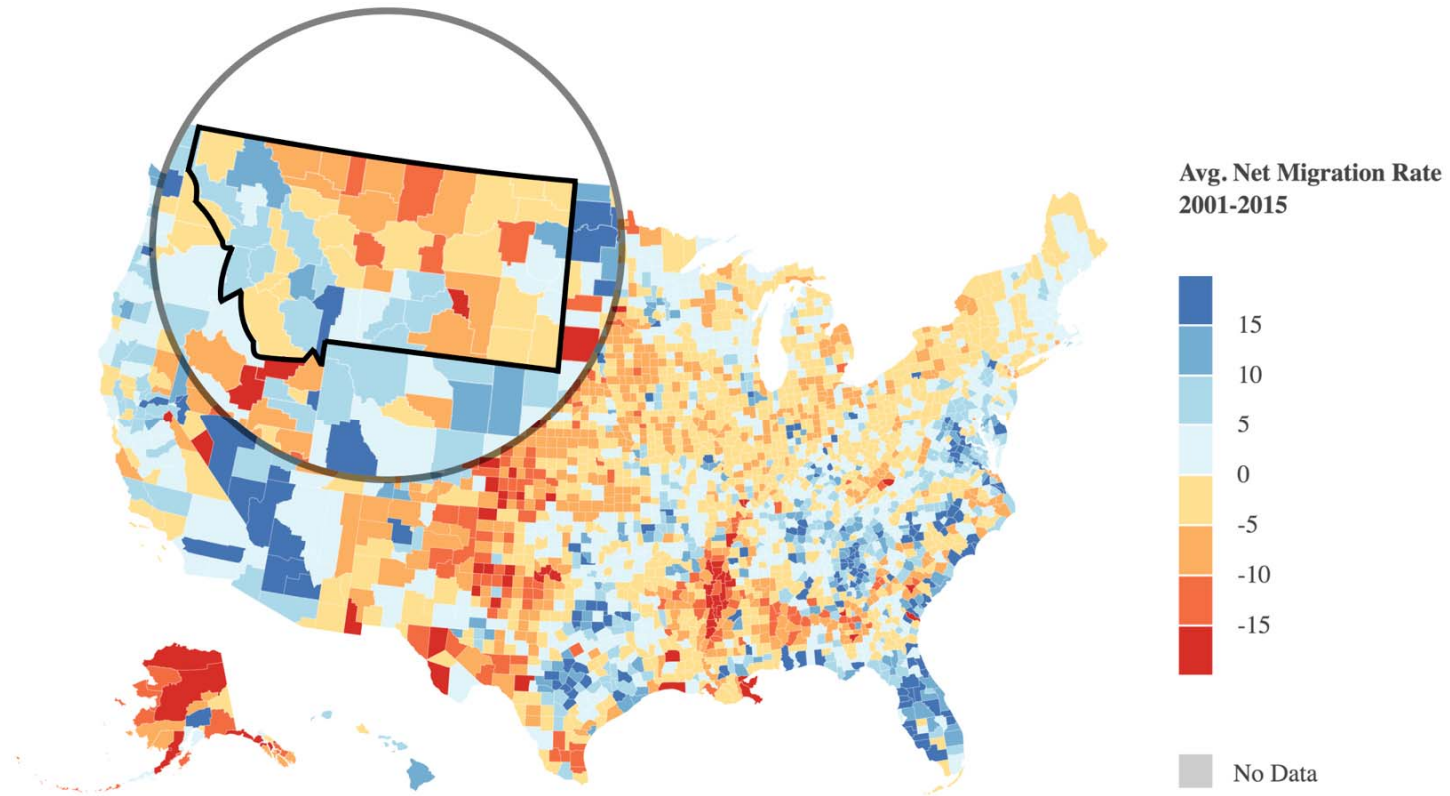
Quality of life? Cost of living? Jobs?

People want to live in Montana. Montana has a fairly high net migration rate.

Average Annual Net Migrants per 1,000 People 2000-2016

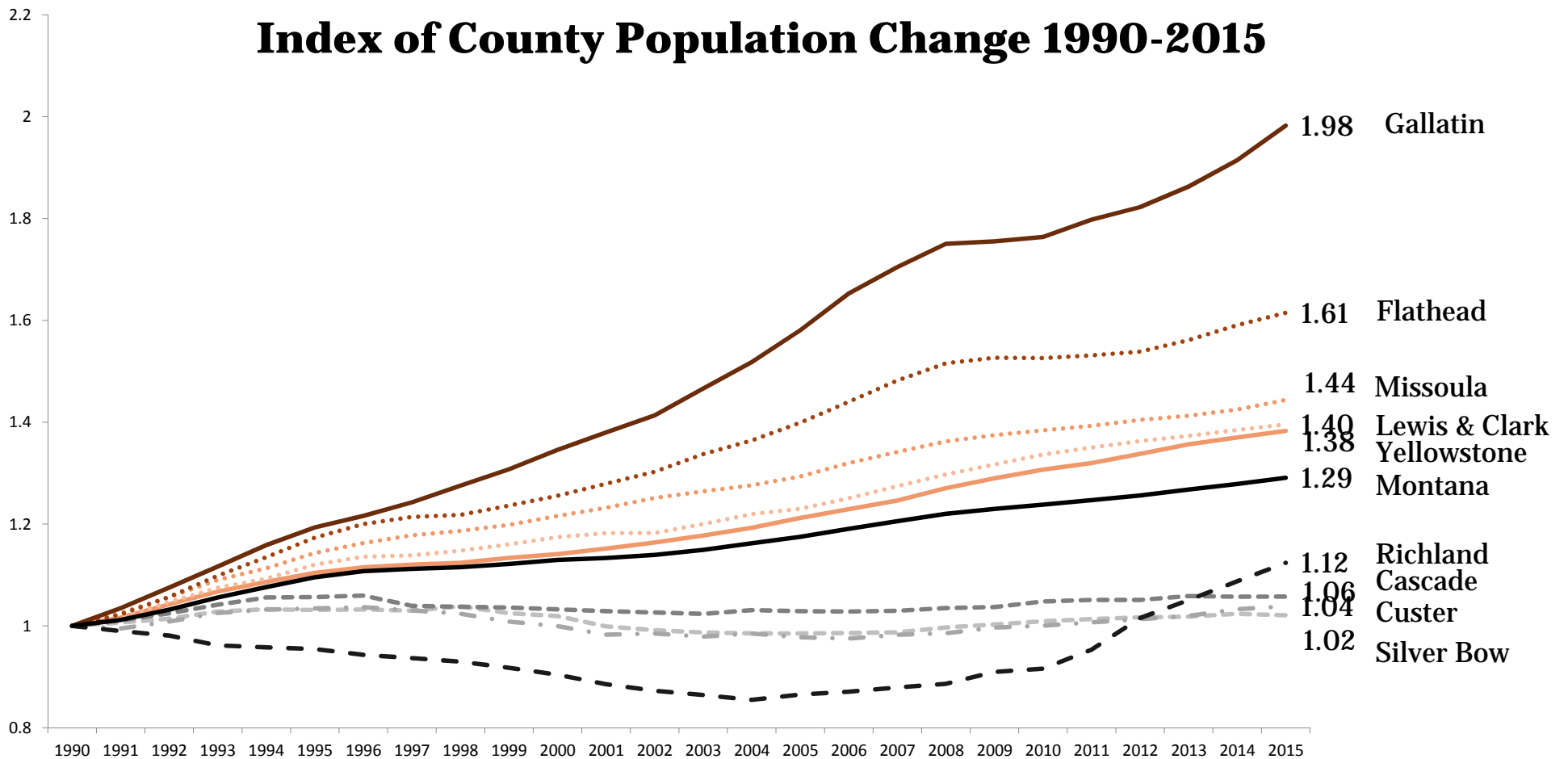


Average net migration rates vary widely across the country and across Montana.



Source: BBER analysis of U.S. Census Bureau Components of Population Change Data, 2001-2015

Index of County Population Change 1990-2015



Montanans love Montana.

States Whose Residents Are Least Likely, and Most Likely, to Want to Leave

Ideally, if you had the opportunity, would you like to move permanently to another state, or would you prefer to continue living in this state?

Least likely states	% Yes, would like to move	Most likely states	% Yes, would like to move
Montana	13	Connecticut	46
Oregon	17	New Jersey	46
Washington	19	Illinois	42
Hawaii	19	Rhode Island	41
Colorado	20	Maryland	40
South Dakota	20	Delaware	38
Idaho	21	Ohio	38
New Hampshire	22	New York	37
North Dakota	24	Nevada	35
Texas	24	Indiana	35
Maine	24		

Gallup State of the States 2015 study

GALLUP®

Top: Residents' Views of Their State as Best Place to Live

How would you describe the state where you live?

	Best or one of the best possible states to live
Montana	77%
Alaska	77%
Utah	70%
Wyoming	69%
Texas	68%
Hawaii	68%
New Hampshire	67%
North Dakota	66%
Colorado	65%
Vermont	61%
Oregon	61%
Minnesota	61%

June-December 2013

GALLUP®

Montana's quality of life is excellent.

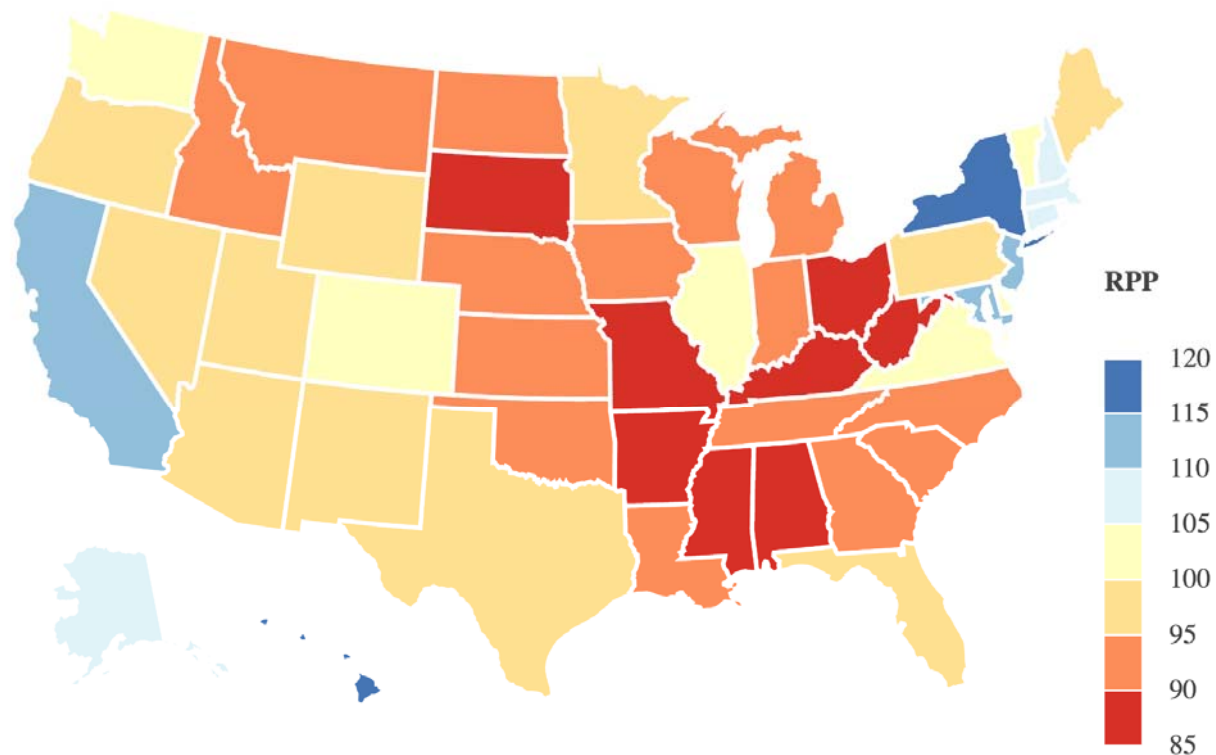
Empirical Quality of Life Ranking (% of income willing to pay to live in area, relative to national average)



State	QoL Measure	Rank
Hawaii	18.2%	1
California	8.5%	2
Vermont	7.1%	3
Colorado	6.5%	4
Oregon	5.8%	5
Montana	5.5%	6
Washington	4.6%	7
Nevada/Virginia	-1.0%	24/25
Mississippi	-5.3%	50

Source: Albouy, David (2012) . "Are Big Cities Bad Places to Live? Estimating Quality of Life Across Metropolitan Areas."

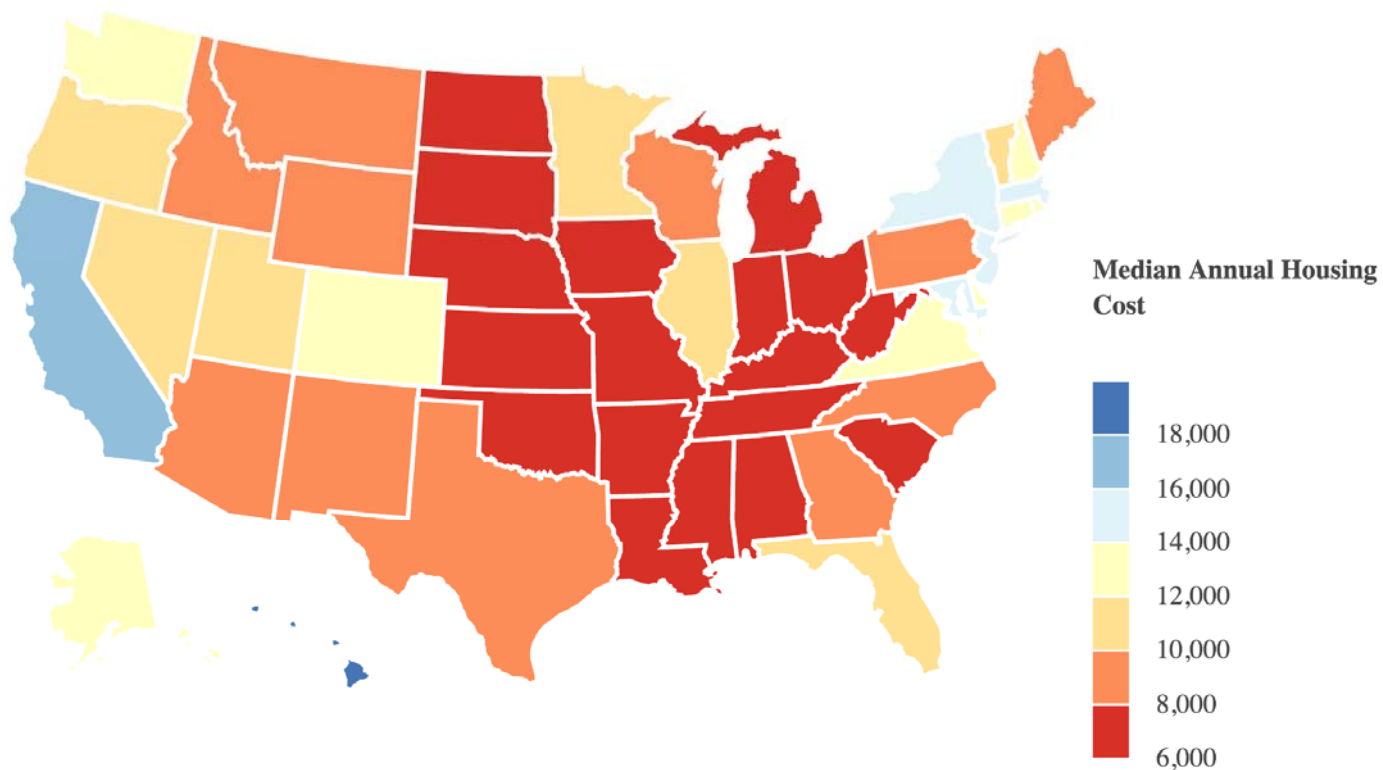
Montana's cost of living is about 6% below the U.S. level (and approximately 20% below an expensive state, like California).



Montana Regions	Regional Price Parity (US=100)
Billings	97.7
Missoula	95.8
Great Falls	93.8
Non-Metro Montana	92.5

Source: Bureau of Economic Analysis, Regional Price Parities 2014

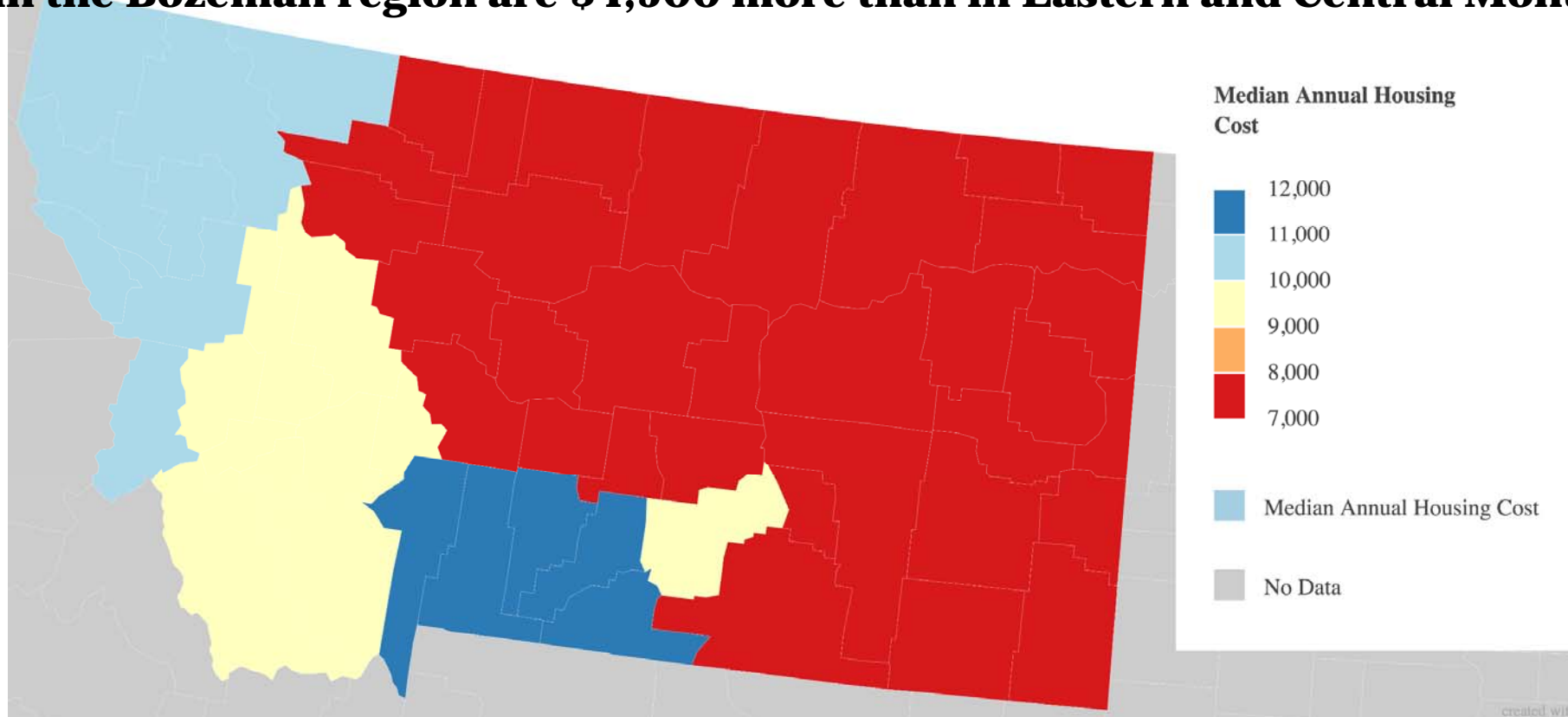
Housing costs drive cost differences across place. The median Montana household pays \$750 less per year for housing than the national median.



	Difference from MT
California	\$7,238
Washington	\$3,250
Colorado	\$3,000
Oregon	\$2,150
United States	\$750
Wyoming	\$250
Arizona	\$250
Idaho	-\$750
Texas	-\$1,250
South Dakota	-\$1,750

Source: BBER Analysis of American Community Survey PUMS 2010-2014 5-year file (obtained from IPUMS-USA). Housing costs = 12*monthly gross rent for renters and 0.05*home value for home owners.

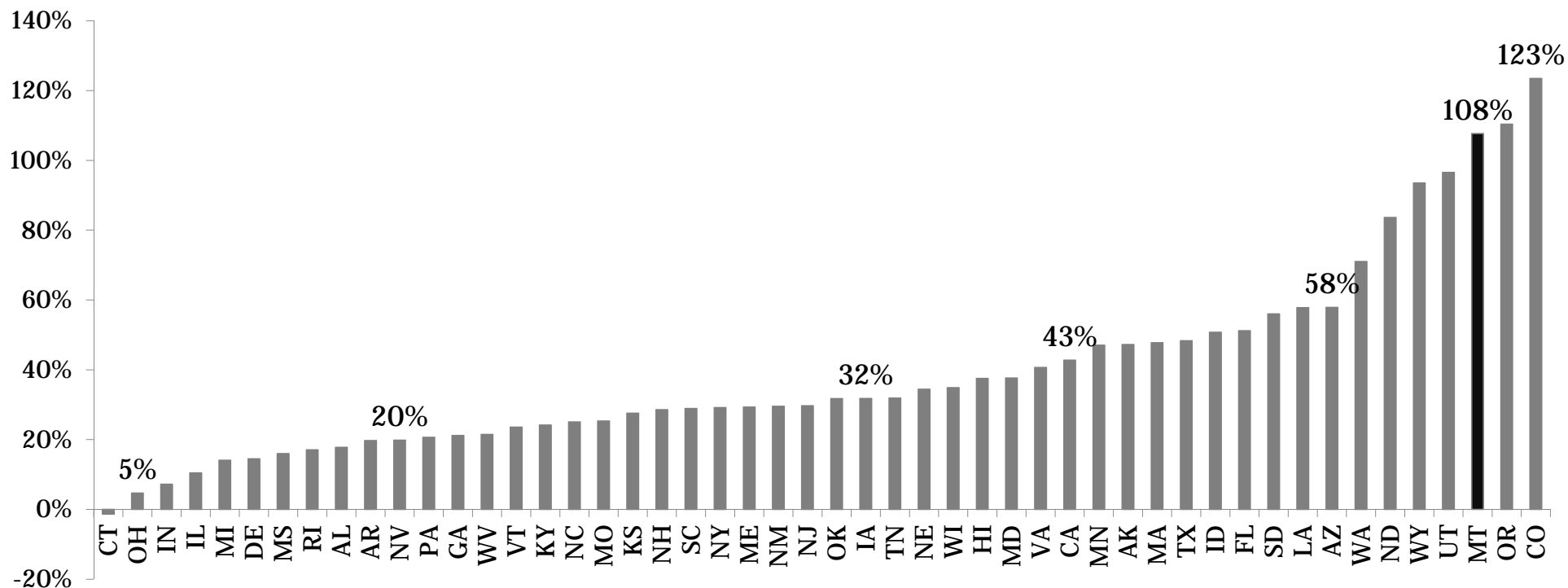
Housing costs are not uniform across Montana. Median annual housing costs in the Bozeman region are \$4,500 more than in Eastern and Central Montana.



Source: BBER Analysis of American Community Survey PUMS 2012-2014 3-year file. Housing costs = 12*monthly gross rent for renters and 0.05*home value for home owners. Smallest unit of analysis in the PUMS data is a PUMA which may encompass several counties. The Billings PUMA comprises only Billings City.

House prices in Montana have risen at the third fastest rate among all states over the past 25 years.

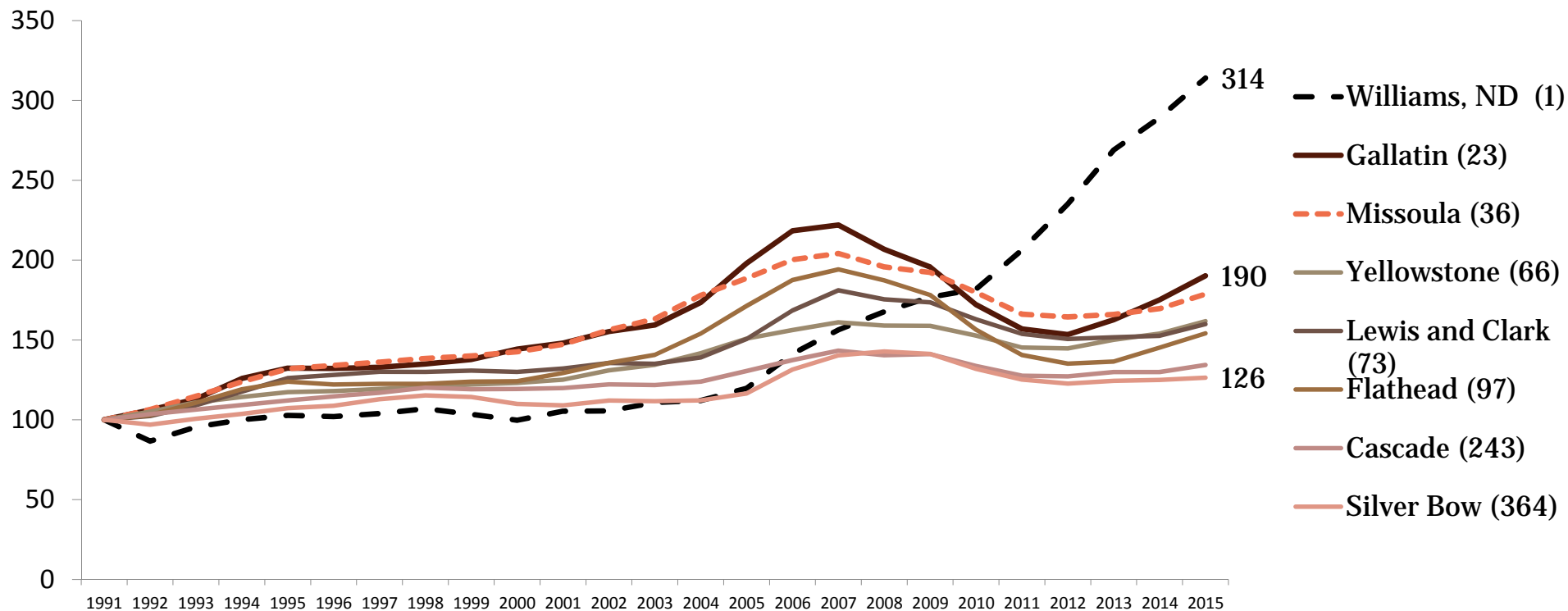
Cumulative % Change in Inflation-Adjusted House Prices, 1991-2016



Source: BBER analysis of OFHEO House Price Index – Purchase only index, adjustment for inflation made using CPI less shelter

Wide variation in housing price change exists across Montana counties.

Inflation-Adjusted HPI, 1991-2015



Source: BBER analysis of OFHEO developmental county HPI, adjustment for inflation made using CPI less shelter

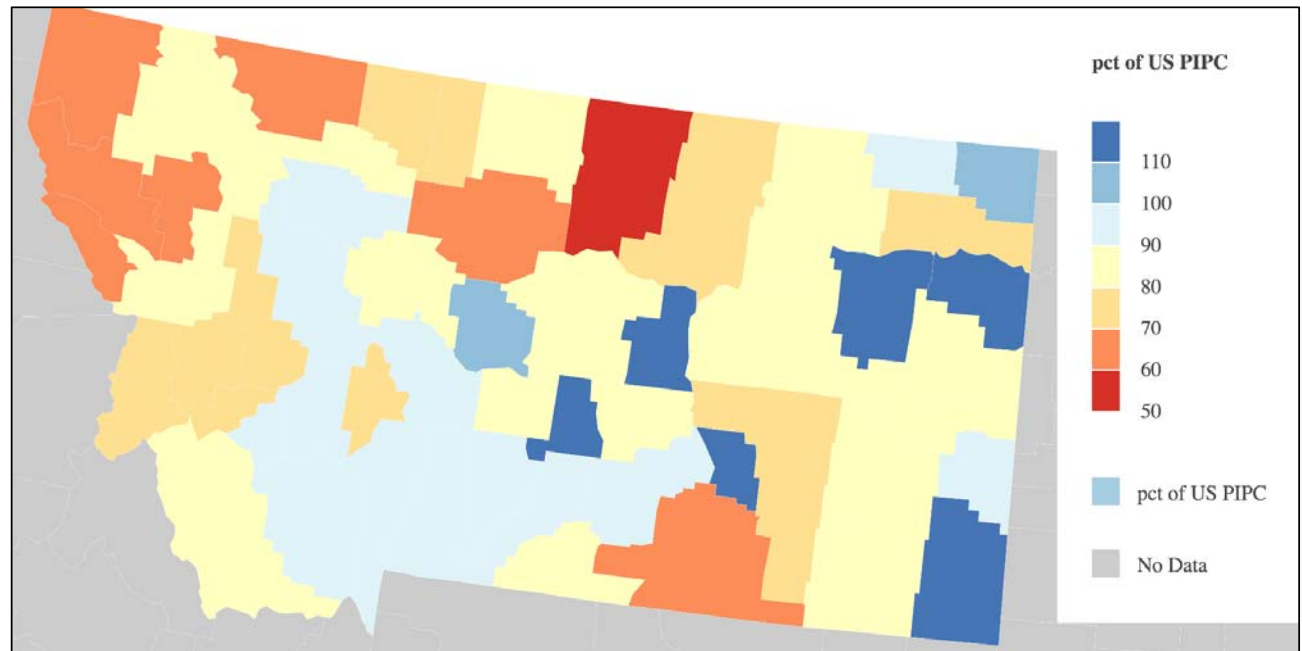
Income is low in Montana.

Personal income per capita and median household income are 87-88% of the U.S. level. Median earning for workers over age 24 are essentially tied for last.

Adjusting for differences in the cost of living eliminates some of the gap. It brings Montanan's incomes up to 93% of the U.S. level.

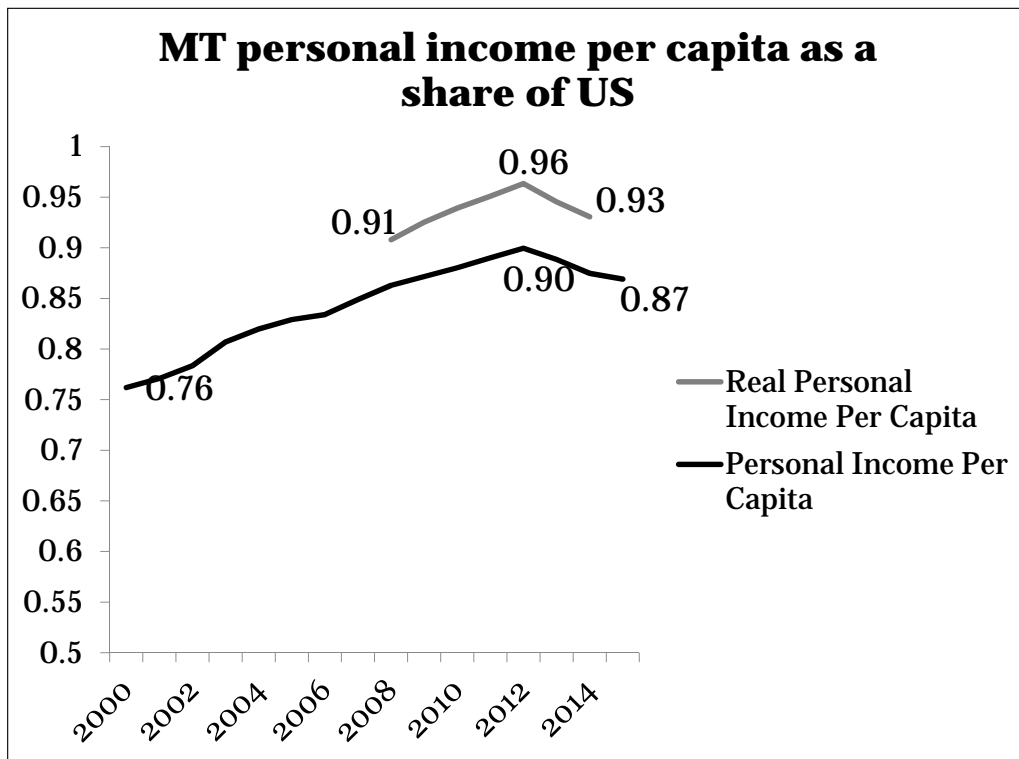
Montanan's income varies widely across the state.

Personal income per capita as a percent of US level.



Source: BBER analysis of Bureau of Economic Analysis Local Area Personal Income data.

Income in Montana has grown relatively fast over the past 15 years. As a result, income in Montana has converged toward the U.S. level.



Personal income per capita as a share of US level, 2000 and 2015.

	2000	2015	Change
Richland	0.68	1.24	0.56
Gallatin	0.84	0.96	0.13
Yellowstone	0.86	0.96	0.10
Silver Bow	0.76	0.92	0.16
Lewis and Clark	0.84	0.92	0.07
Cascade	0.81	0.87	0.06
Montana	0.76	0.87	0.11
Custer	0.72	0.85	0.13
Missoula	0.82	0.85	0.02
Flathead	0.80	0.84	0.04

Source: BBER analysis of Bureau of Economic Analysis Local Area Personal Income data.

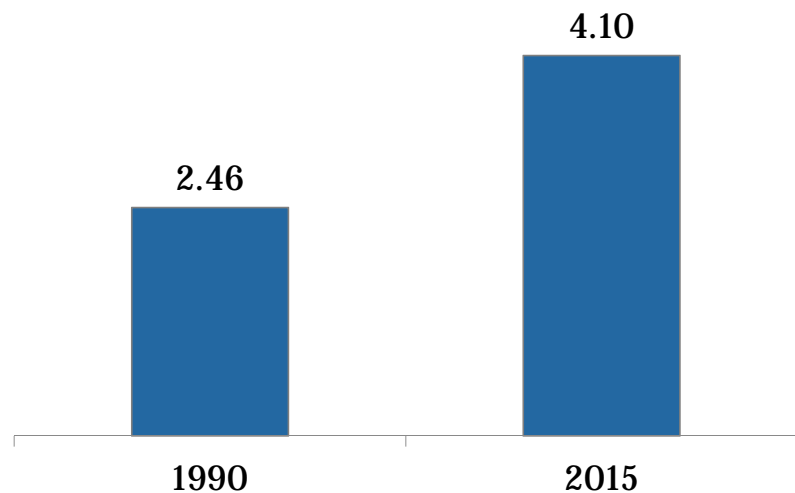
Housing prices have grown much faster than income.

	Percent change in real median HH income, 1990-2015	Percent change real median home value, 1990-2015
Montana	13%	89%
Cascade	5%	49%
Custer	26%	103%
Flathead	9%	99%
Gallatin	31%	114%
Lewis and Clark	18%	86%
Missoula	9%	100%
Richland	55%	125%
Silver Bow	-2%	60%
Yellowstone	12%	69%

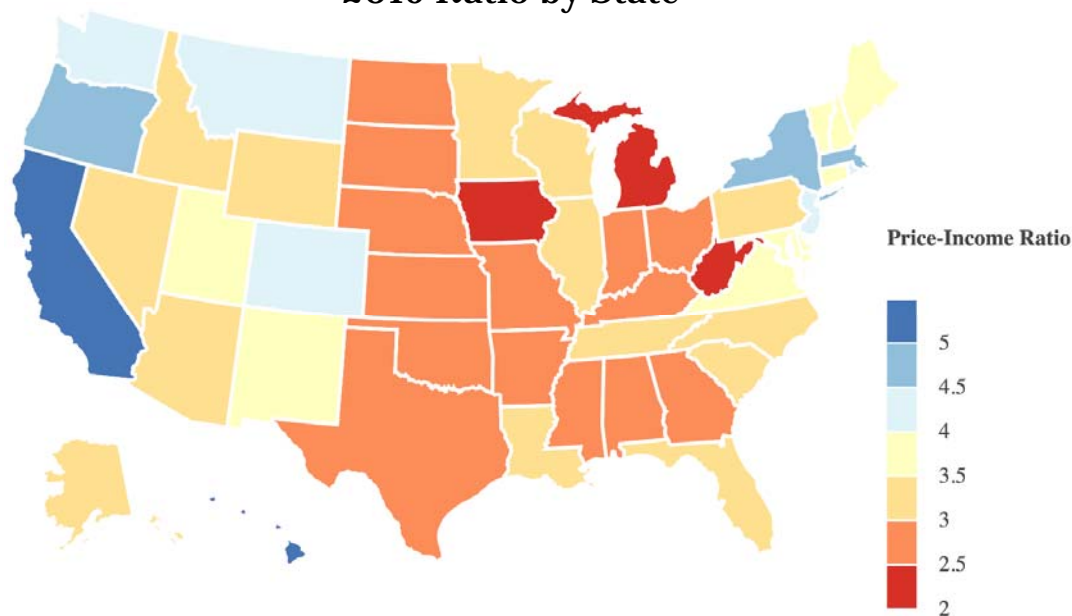
Source: BBER analysis of 1990 Census and 2015 American Community Survey (5-year) file.

Montana has become much less affordable. By one metric, Montana ranks 41st in affordability, similar to Colorado, Washington, and New Jersey.

Median Home Value divided by Median HH Income in Montana



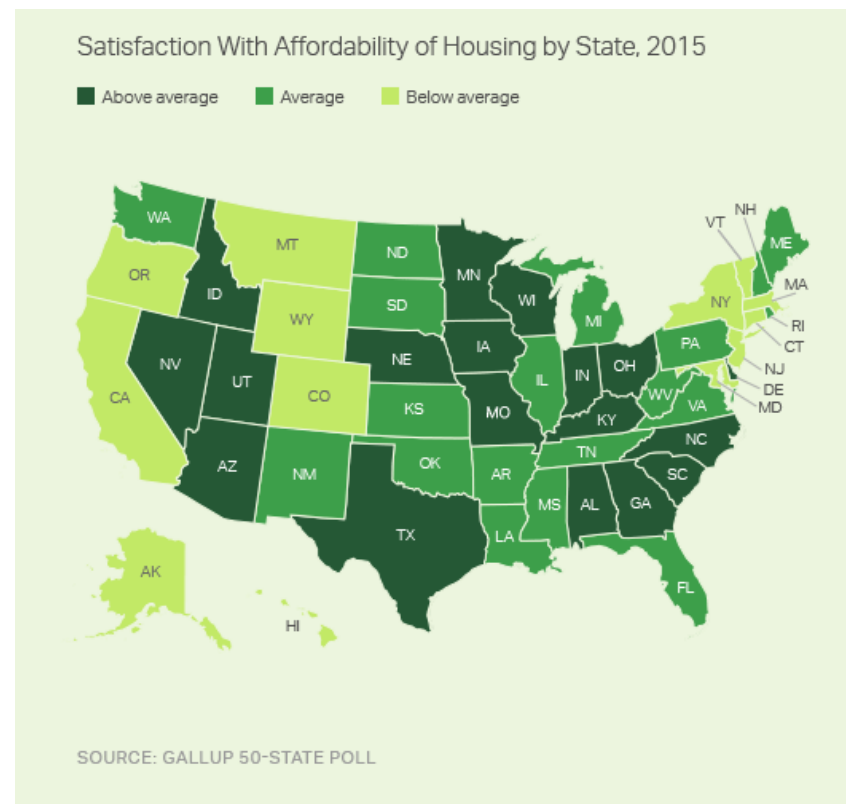
2015 Ratio by State



Source: BBER analysis of 1990 Census and 2015 American Community Survey (5-year) file.

Most Montanans live in counties with very high price-income ratios. A substantial proportion of Montanans believe that Montana is unaffordable.

Price-Income Ratio			
	1990	2015	2015 county percentile
Missoula	2.83	5.19	97th
Gallatin	3.01	4.89	96th
Flathead	2.66	4.84	96th
Lewis and Clark	2.34	3.71	87th
Yellowstone	2.42	3.65	86th
Cascade	2.54	3.59	85th
Silver Bow	2.09	3.39	81st
Custer	1.75	2.82	62nd
Richland	1.90	2.76	60th



Source: BBER analysis of 1990 Census and 2015 American Community Survey (5-year) file; Gallup State of the States.

Summary

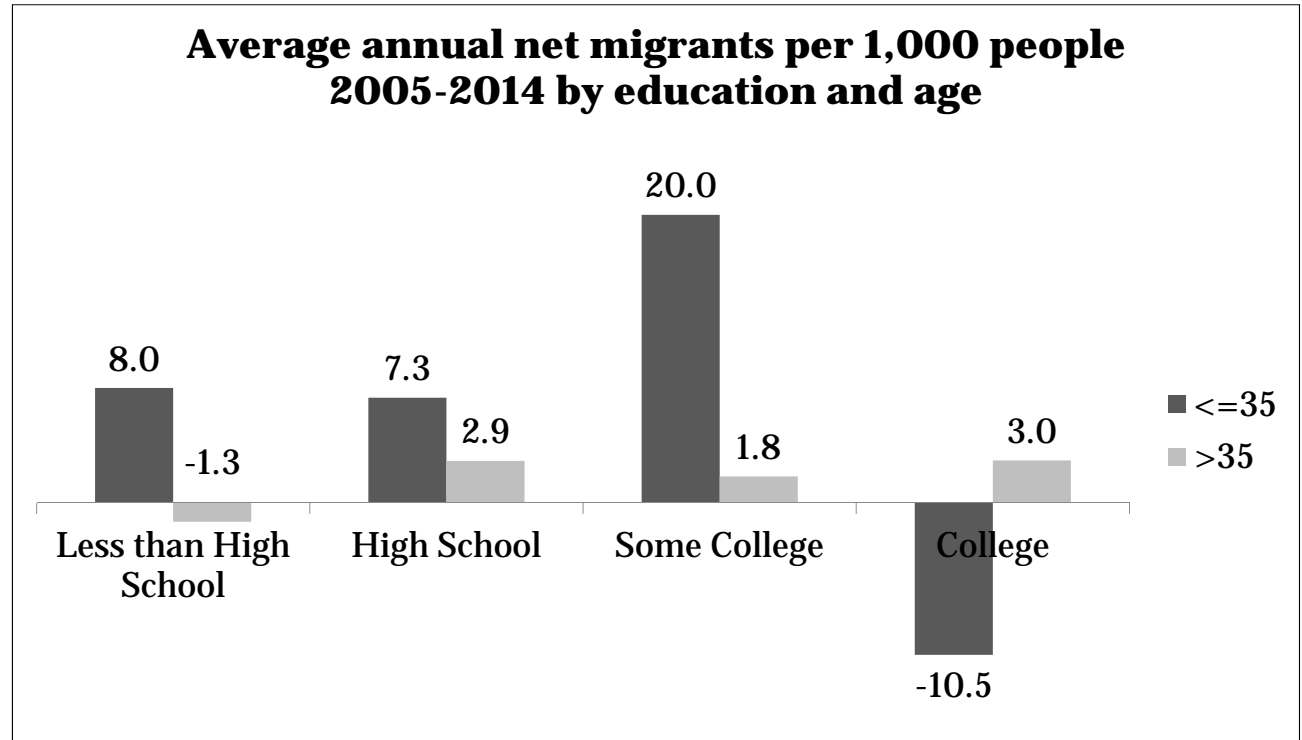
While significant variation exists across the state, broadly, Montana is doing well:

- (1) People are, on net, moving to Montana. This indicates that Montana offers something desirable.**
- (2) Montana's quality of life is appealing.**
- (3) Montana's cost of living is below average, *but housing costs (a key driver of cost of living) have increased rapidly over the past 25 years.***
- (4) *Montana incomes are low*, but Montana incomes have grown more rapidly than the U.S. over the past 15 years. As a result, Montana income does not lag by as much as it used to.**
- (5) *Montana's basic problem is that housing prices have increased much more rapidly than income. As a result, Montana has become less affordable.***

An additional challenge – the college-educated

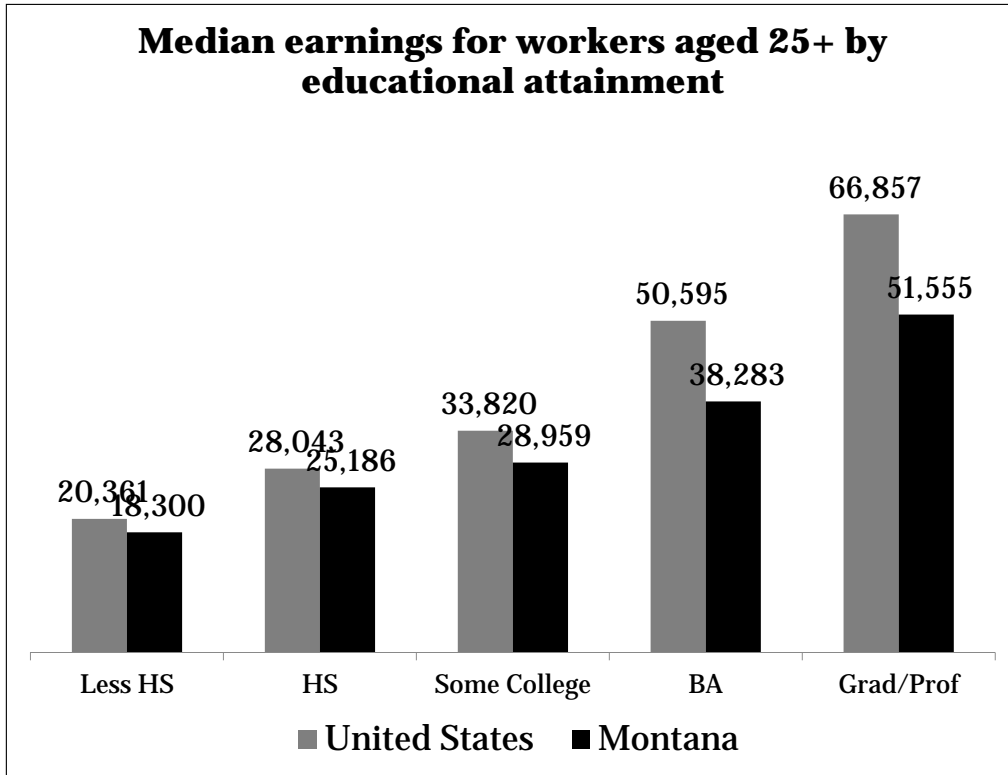
While Montana appears to offer a “good deal” overall, it is not equally appealing to all groups. In particular, the young and college educated find Montana less desirable.

Montana experiences a net outmigration of people with college degrees. This is driven by the outmigration of young people (<35) with college degrees.



Source: BBER analysis of American Community Survey PUMS 2005-2009 5-year file and 2010-2014 5-year file (obtained from IPUMS-USA)

Job opportunities in Montana for college-educated workers are less appealing. The income gap between Montana and the rest of the country is much larger for college-educated workers.



Source: BBER analysis of American Community Survey 2015 (5-year).

Median earnings as a percent of US level by education for selected counties.

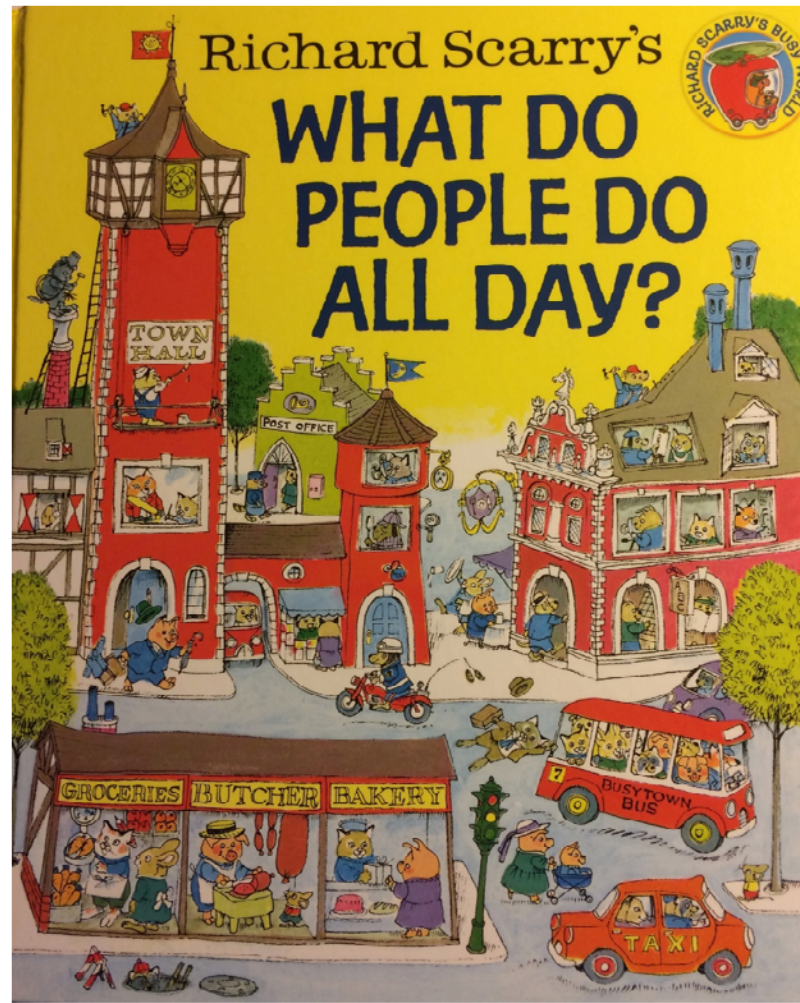
	Less HS	HS	Some College	Bach.	Grad/Prof
Montana	90%	90%	86%	76%	77%
Williams, ND	134%	181%	122%	109%	118%
Flathead	86%	91%	85%	76%	71%
Gallatin	134%	99%	89%	76%	79%
Lewis and Clark	98%	95%	95%	94%	84%
Missoula	100%	89%	77%	63%	76%
Silver Bow	74%	87%	76%	81%	90%
Yellowstone	106%	95%	93%	87%	82%

Change in Population by Educational Attainment and Birthplace, Ages 25+



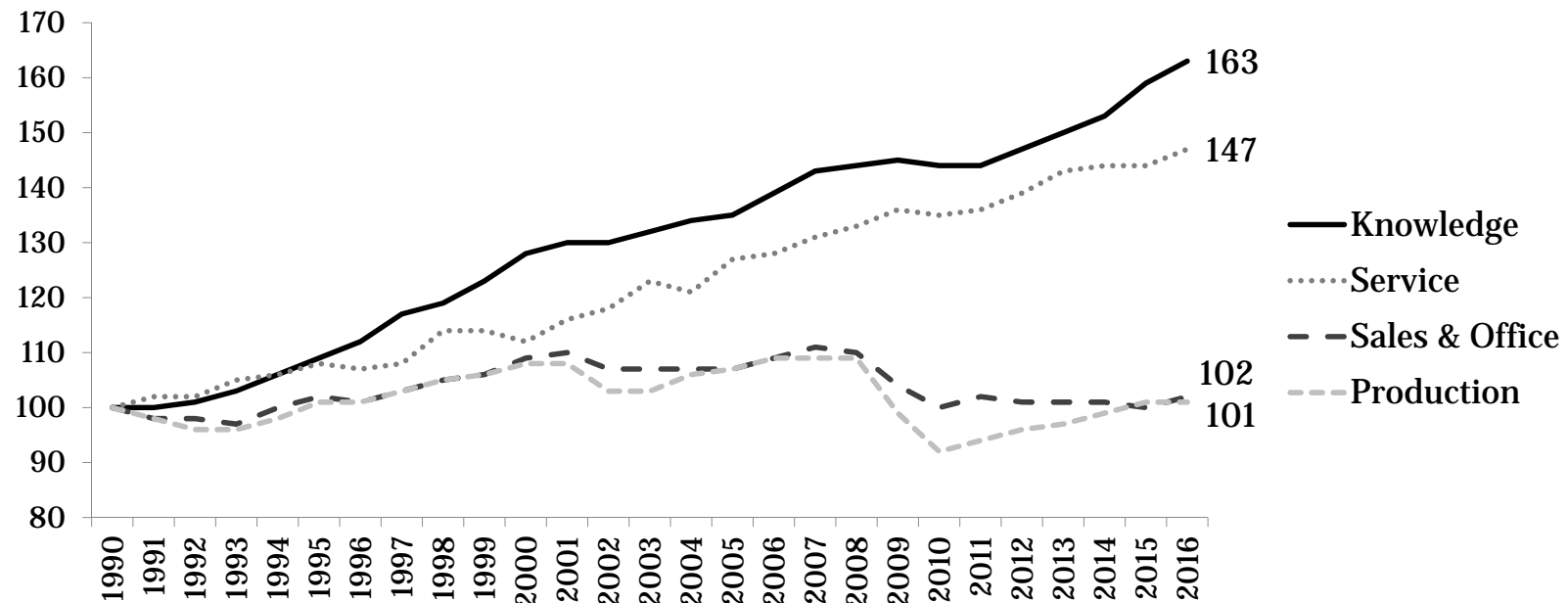
	Native-born Montanans in Other States	Native-born Montanans in Montana	Current Montanans Born Elsewhere	% of Native-born Montanans in Other States	Net Gain/Loss	Net Gain/Loss %
Less than High School	21,322	25,684	24,872	45%	3,550	8%
High School	80,143	103,176	100,011	44%	19,868	11%
Some College	127,326	112,366	118,266	53%	-9,060	-4%
College	84,910	60,804	74,568	58%	-10,342	-7%
Grad/Prof	49,031	21,162	42,636	70%	-6,395	-9%

Source: BBER analysis of American Community Survey PUMS 2010-2014 5-year file (obtained from IPUMS-USA)



The economy has changed dramatically. Net job creation is concentrated in high-wage, high-skill knowledge work and low-wage, low skill service work. These trends are expected to continue.

Job Polarization: Cumulative employment change 1990-2016 by occupation classification.



Source: BBER Analysis of Current Population Survey data obtained from FRED Economic Data.

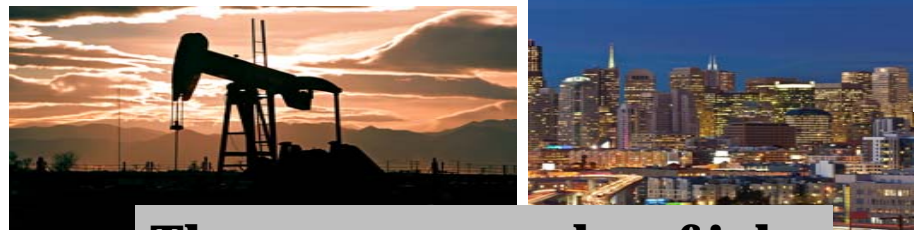
The new geography of jobs.

Historically, economies sprouted where soil was fertile, timber and minerals were abundant, and where transportation by water was easy, such as at the confluence of rivers or at natural ports. Over time, man-made advantages like railroads or highways helped further shaped local economic development.

In recent years, the link between natural resources and local prosperity has weakened. Natural resources and access to markets still matter, but a region's success is increasingly tied to human creativity. Recent changes have allowed the knowledge economy to become a reliable driver of economic growth.



The old geography of jobs

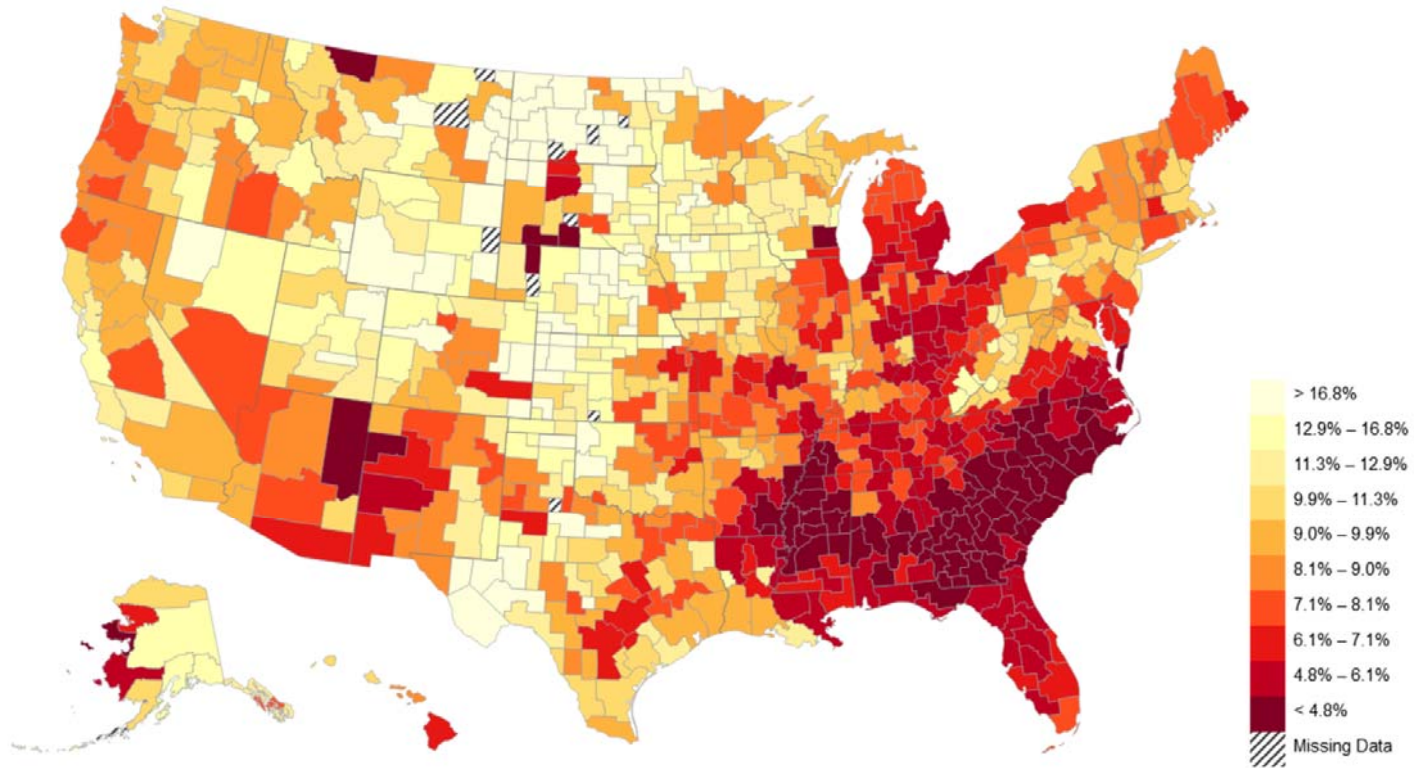


The new geography of jobs



The Geography of Upward Mobility in America

Children's Chances of Reaching Top 20% of Income Distribution Given Parents in Bottom 20%



Source: The Equality of Opportunity Project



Texas Oil Fields Rebound From Price Lull, but Jobs Are Left Behind

The industry is embracing technology, and finding new ways to pare the labor force. But as jobs go away, what of presidential promises to bring them back?

By CLIFFORD KRAUSS FEB. 19, 2017

The oil-producing landscape of Midland, Tex., is rife with pumps and rigs. Ilana Panich-Linsman for The New York Times

MIDLAND, Tex. — In the land where [oil](#) jobs were once a guaranteed road to security for blue-collar workers, Eustasio Velazquez's career has been upended by technology.

RELATED COVERAGE



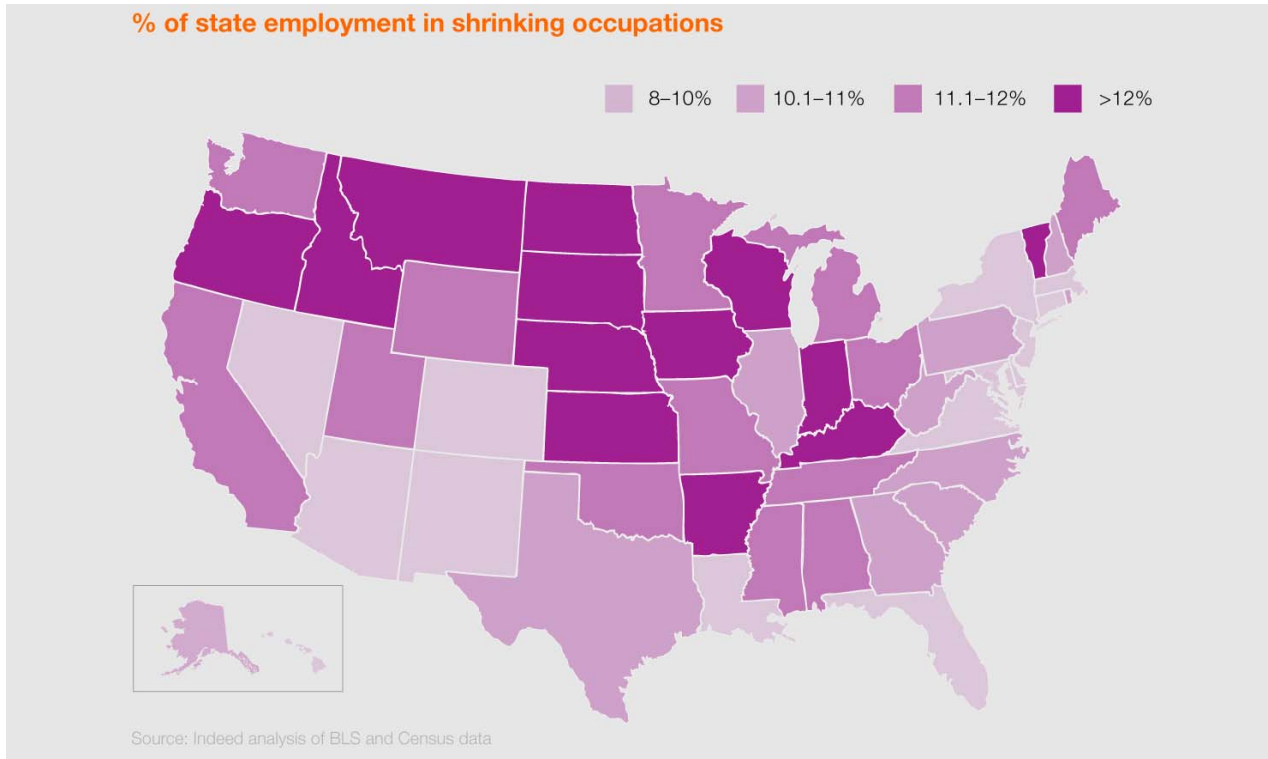
Land Rush in Permian Basin, Where Oil Is
Spurred by Low Gas Prices

The net outmigration of the college-educated matters.

Economists find that regions with more skilled workers enjoy a variety of benefits. For instance, regions with more college-educated workers:

- (1) Grow faster – they enjoy faster population, employment wage, and housing price growth.
- (2) Enjoy higher levels of productivity
- (3) Enjoy higher quality of life
- (4) Have higher rates of entrepreneurship (and their entrepreneurs are more successful).
- (5) Are more resilient and more capable at recovering from inevitable downturns.

The data examined thus far are backward looking or current. What about the future? Are there looming threats?



Montana has a high share of employment in jobs projected to shrink over the next decade.

Consistent with this threat, Montana ranks in the bottom 10 on Gallup's Economic Confidence Index and its Job Creation Index.

Source: Kolko, J. (2016) "The Geography of Economic Anxiety." <http://blog.indeed.com/2016/09/06/geography-economic-anxiety/>; Gallup "State of the States" http://www.gallup.com/topic/state_of_the_states.aspx

While Montana has a fairly typical share of workers in knowledge occupations, Montana's knowledge workers earn substantially less than knowledge workers elsewhere.

Percent of workers by occupation category and median earnings for knowledge workers, US, Montana, and Montana PUMAs

	Knowledge	Sales and Office	Production	Service	Farming, Forestry	Median Earnings for Knowledge Workers	Median Earnings as % of US
US	37%	24%	20%	18%	1%	55,000	
Montana	36%	23%	21%	19%	2%	42,000	76%
Kalispell (and NW Montana)	32%	26%	22%	18%	2%	40,000	73%
Missoula area	37%	23%	19%	19%	1%	41,000	75%
Helena, Butte, SW Montana	38%	22%	18%	20%	1%	47,000	85%
Great Falls (and north central Montana)	36%	22%	18%	20%	3%	40,000	73%
Bozeman (and south central Montana)	38%	22%	21%	17%	1%	42,000	76%
Eastern MT	34%	20%	26%	18%	2%	42,000	76%
Billings	33%	23%	23%	20%	0%	45,000	82%

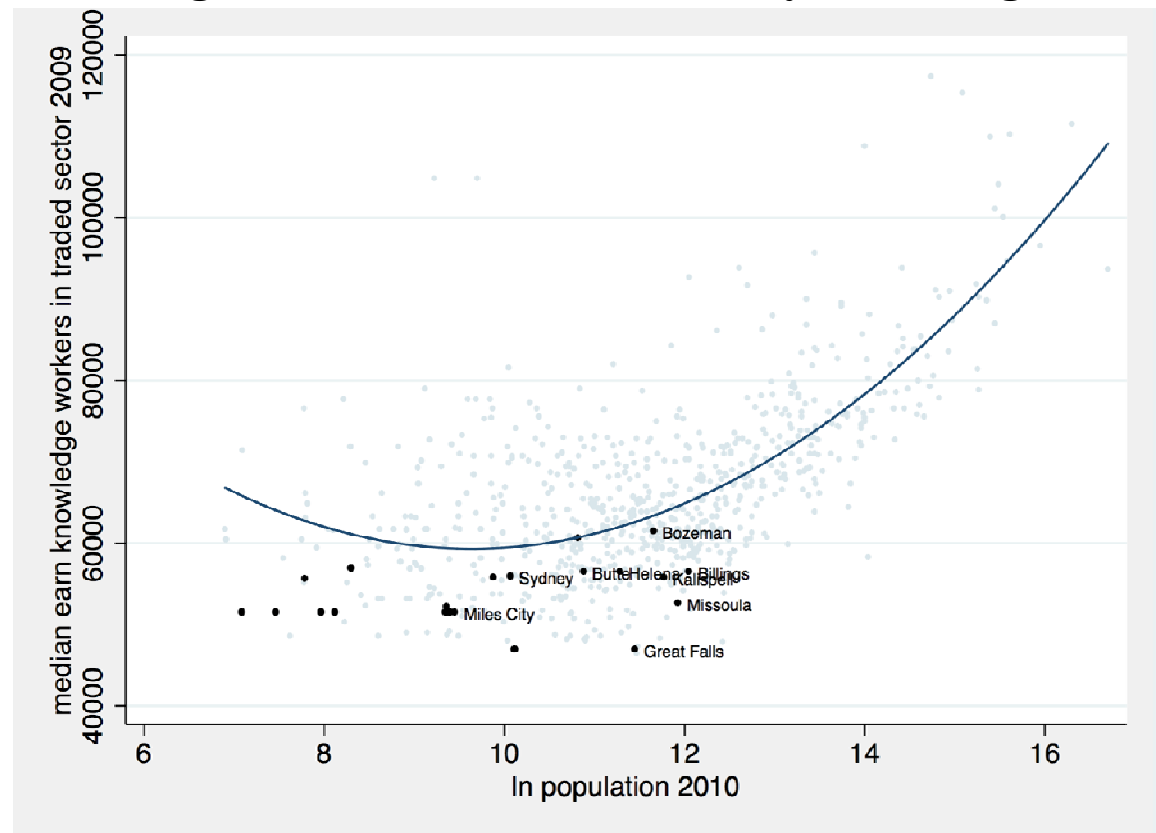
Source: BBER analysis of American Community Survey PUMS 2012, 2013, 2014, 2015 (obtained from IPUMS-USA)

Why are earnings low?

Low earnings for Montana's knowledge workers can be decomposed into two parts. First, Montana has fewer workers in higher wage occupations (composition). Second, Montanans earn less than people working in the same occupation and industry elsewhere (productivity).

These factors, in part, reflect the fact that Montanans live in relatively small places that are isolated from large metro areas.

Relationship between population and median earnings for knowledge workers in the traded sector by commuting zone



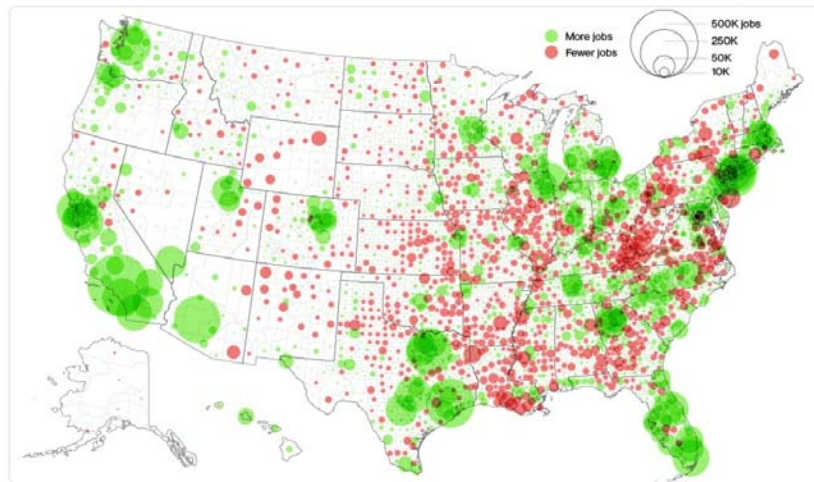


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Which places in America are doing well economically?

1. Big cities
2. College towns
3. Tech hubs
4. Sunny places

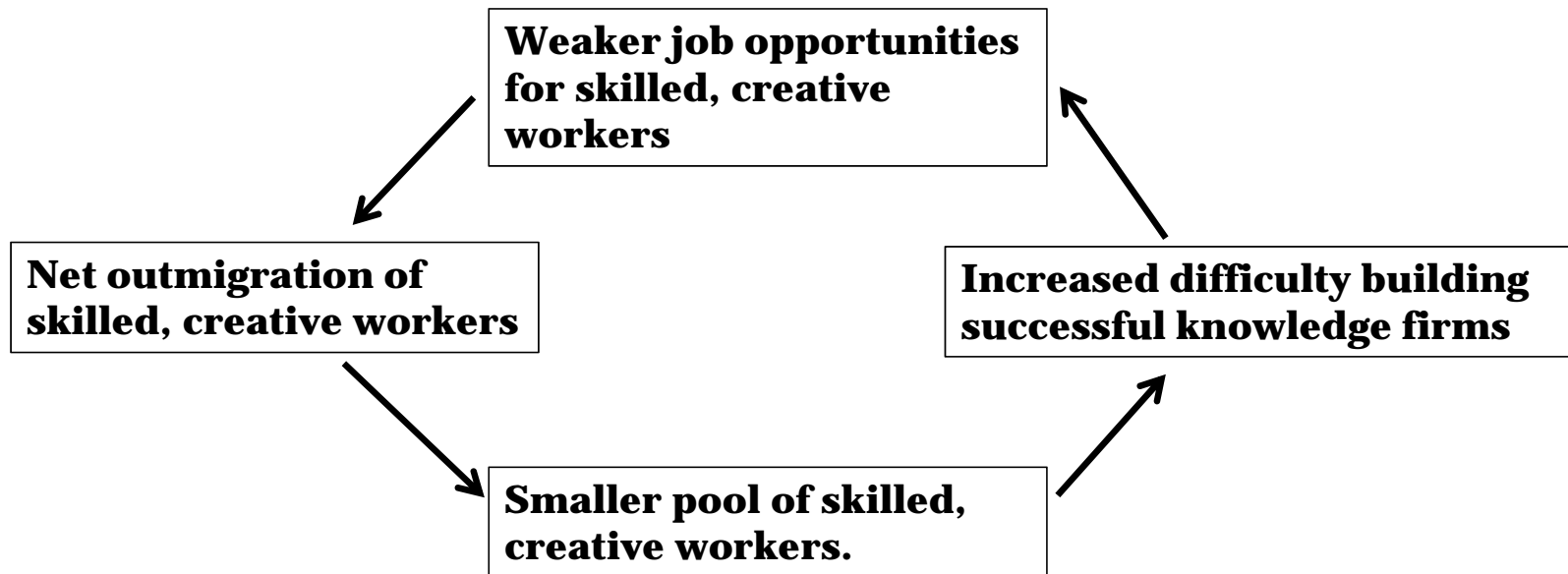


RETWEETS
276

LIKES
306



Montana faces an unfortunate cycle. It has two problems which reinforce each other.



How can Montana break free of this cycle?

The knowledge economy is not innately tied to a particular place. To succeed, a place needs:

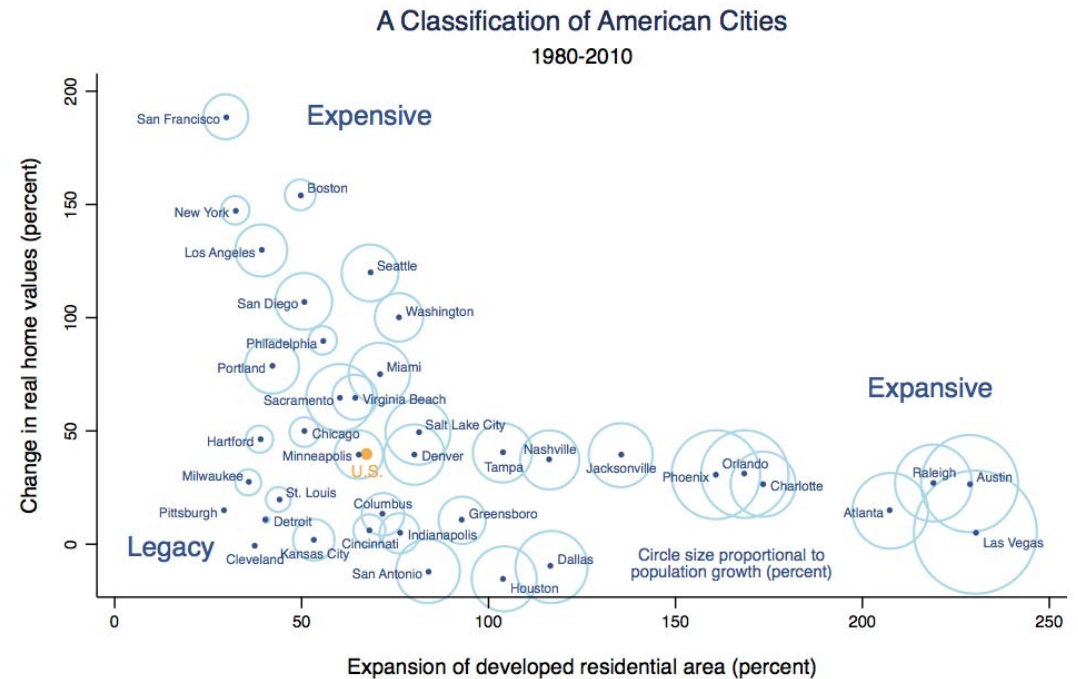
- (1) Sufficient resources (particularly skilled workers) to allow firms to competitively produce goods and services.
- (2) The ability to deliver goods and services to far away markets at a reasonable cost.
- (3) Entrepreneurs with an idea that can support a successful business and the skills to execute their idea in Montana's economic climate.
- (4) A willingness to systematically learn from its entrepreneurs – what are the keys to success in Montana, what are common problems, can we collectively help entrepreneurs overcome persistent problems?

The consequences of success.

While creating a more robust knowledge sector would likely benefit many Montanans by creating a more resilient economy with better job opportunities, Montana would still have problems.

Better job opportunities would make Montana more attractive. As a result, population would increase and/or the cost of living would increase.

A higher cost of living would make Montana less attractive, especially to people whose incomes do not rise proportionally. More people would increase congestion and may affect Montana's quality of life.



Source: BuildZoom.

Notes: Observations include the 40 most populated U.S. conurbations. This chart considers residential areas as developed when they exceed a density of 200 existing homes per square mile. Developed areas correspond to CSAs, or to CBSAs that are not part of a CSA. Housing prices are always at the CBSA level. The change in housing prices is the percent change in average inflation-adjusted quarterly housing prices during the decades spanning 2005-2014 and 1975-1984.