Testimony of Mark Haggerty, Headwaters Economics, to the Joint Subcommittee on The Changing Economy and Impacts to the Long-Term Viability of Montana's Tax Structure.

January 17, 2018

Dear Chair and Members of the Committee,

I have been asked to describe Montana's changing economy. This document focuses on Montana's structural transition in employment and personal income from non-services to services industries and the increasing importance of non-labor sources of income.

Montana's economy is growing and generating wealth and jobs, but the structural changes in services and non-services industries are changing the state's economic geography, workforce, and competitive advantage. The changing economy has implications for the state's tax structure.

To help the committee understand Montana's changing economy, this document describes growth in population, income, and employment, and which sectors are responsible for most of the growth.

Next, it describes changes within services and non-services sectors. Services industries are a mix of high-wage activities, the most important being new "innovation" jobs in technology, research, and the internet, and low-wage activities including retail trade, accommodations and food service. Non-services sectors, such as mining, agriculture, and manufacturing, remain important, particularly in terms of their contribution to GDP, but productivity gains and automation have shed jobs and led to stagnant wages.

Next, it describes the widening gap between the state's cities and rural areas. Most of the high-wage services jobs are locating in cities that have access to national and global markets, clusters of like-mined businesses, and a larger educated workforce. Rural areas are not competing for these new jobs as well, and are more acutely impacted by job losses in manufacturing and traditional resource sectors.

At the end, the paper raises several questions about how these changes impact the state's tax structure and revenue collections.

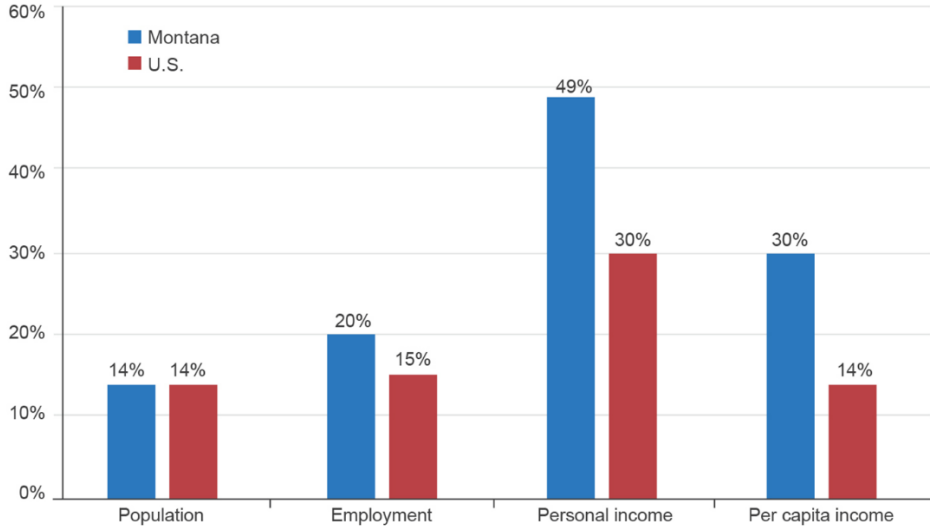
Contact:

Mark Haggerty
Headwaters Economics
(406) 570-5626
mark@headwaterseconomics.org
https://headwaterseconomics.org/

Montana's Economy Is Growing Faster Than the U.S.

From 2000-2015, Montana's employment increased substantially while total real personal income increased by nearly half. Compared to the U.S., Montana's real per capita income grew more than twice as fast. This growth is driven by an increase in higher quality jobs, and the rapid increase of investment and retirement income.

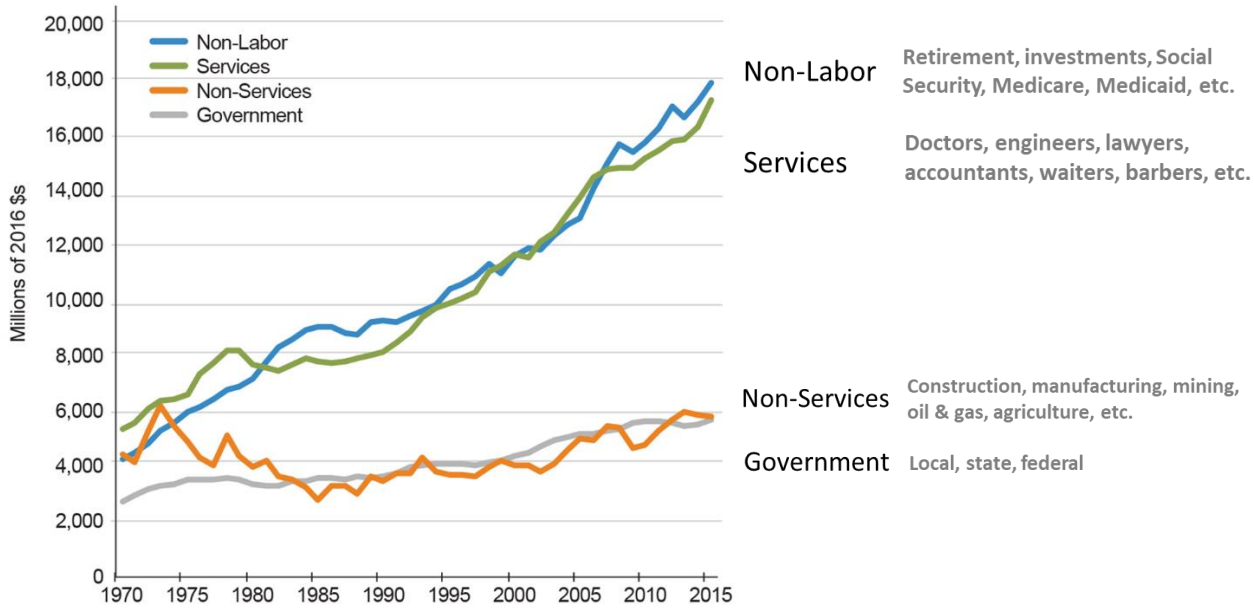
Figure 1: Montana vs. U.S., Percent Change, 2000-2015[1]



Most Income Growth Is in Services and Non-Labor

Since 1990, 80 percent of growth in personal income in Montana has come from people who work in the services industries, or from non-labor income sources (dividends, interest, rent, Social Security, Medicare, Medicaid, etc.).

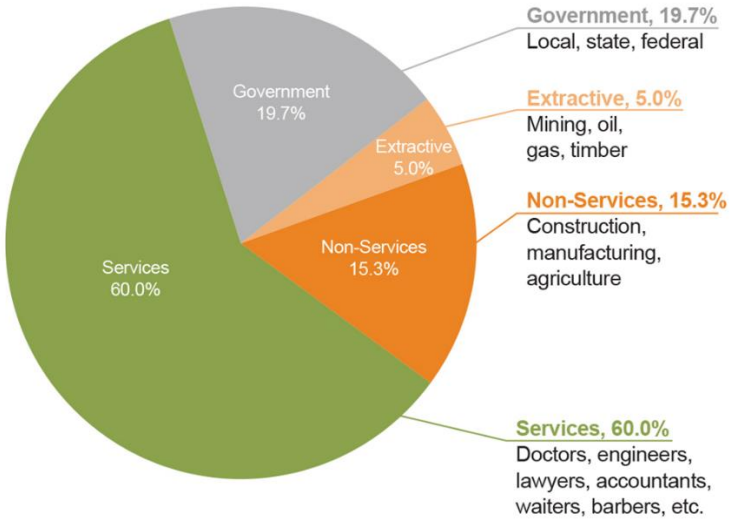
Figure 2: Change in Personal Income by Source, Montana, 1970-2015[2]



Most Labor Income Is in Services

In 2015, 60 percent of total labor income is from service-related industries such as health care, real estate, professional and technical services, and retail trade.

Figure 3: Labor Earnings, Montana, 2015[3]

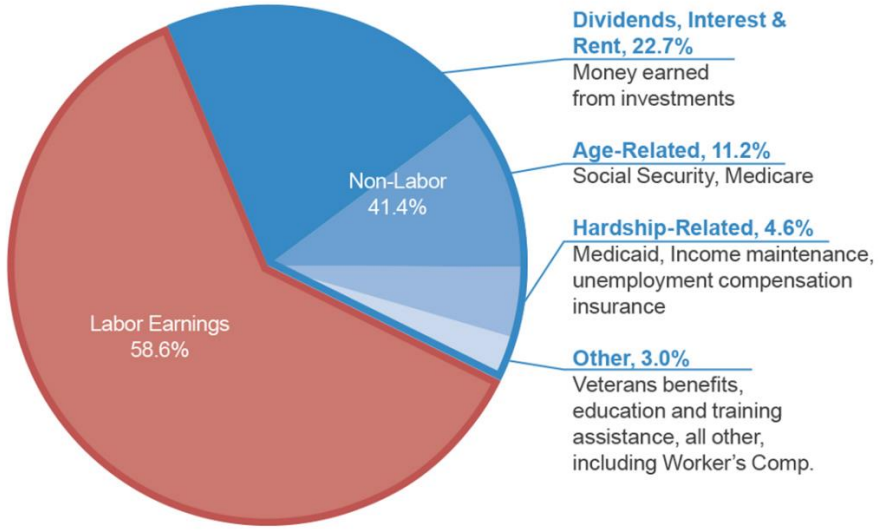


Investment-Related Income Leads Non-Labor Sources

Non-labor income is one of the largest and fastest growing sources of income in Montana and the West. Comprised of three main types—investments, age-related payments, and hardship payments—non-labor income is affected by the stock market, retiring Baby Boomers, and changes to Medicare, Medicaid, and Social Security. Non-labor income is important because it stimulates growth in other sectors, such as construction, health care, and retail trade.[4]

In Montana, non-labor income now accounts for 42 percent of total personal income, and nearly half of net new personal income growth in the last decade during 2001-2014.

Figure 4: Non-Labor Income as Percent of Total, Montana, 2015[5]



High-Wage Jobs in "Innovation" Sectors Are Most Important

Enrico Moretti in his book *The New Geography of Jobs* documents the structural shift in the U.S. economy to services, the most important being the emergence of new high-wage, high-tech service sectors.[6]

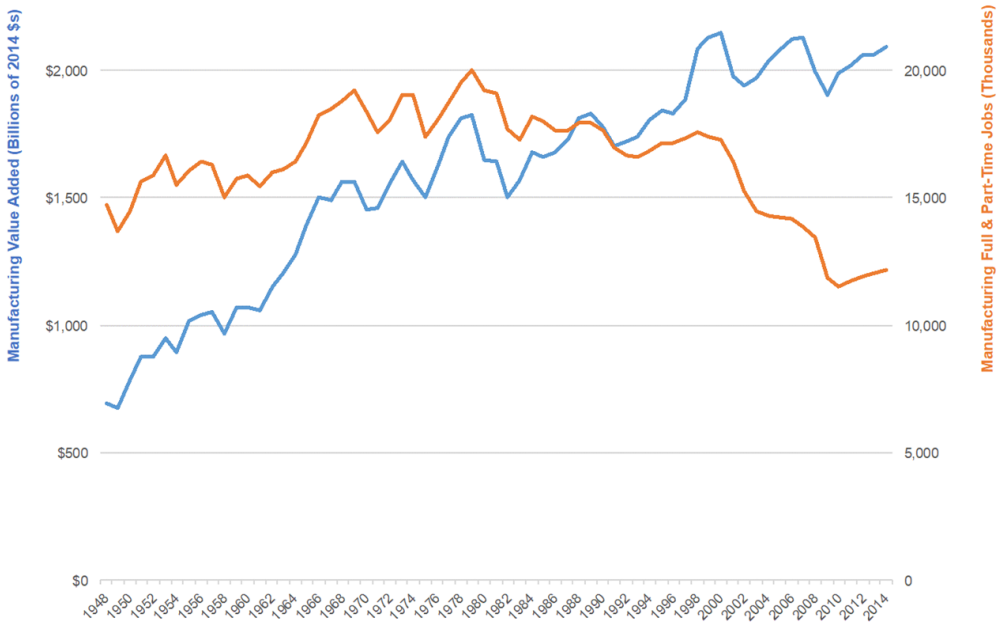
These "innovation" jobs in software, research R&D, finance, and technology are important because they are very well paid and support other sectors (e.g., they have multipliers that create additional jobs in related sectors). For example, Moretti estimates that for every innovation job, five additional jobs are created in the rest of the economy (a ratio of 1:5). By comparison, manufacturing has a ratio of 1:1.9.

Manufacturing and Traditional Sectors Are Losing Jobs

Manufacturing employment in the U.S. has declined sharply beginning in about 1980, falling from 20 million jobs to about 13 million jobs in 2015.[7] At the same time, manufacturing's contribution to Gross Domestic Product (GDP)—the total value of manufactured products—has grown from $1.66 trillion in 1980 to $2.14 trillion in 2000 and $2.17 trillion in 2015 (in constant $2014 dollars).[8]

The decline in manufacturing jobs can be attributed to trade and "offshoring" of jobs in low-value manufacturing sectors, and to increasing productivity and automation in high-value manufacturing sectors that remained in the U.S. In total, between 12 percent[9] and 25 percent[10] of manufacturing job losses can be attributed to increasing trade. Most manufacturing job losses can be attributed to labor-saving technologies and the shift to high-tech manufacturing.[11]

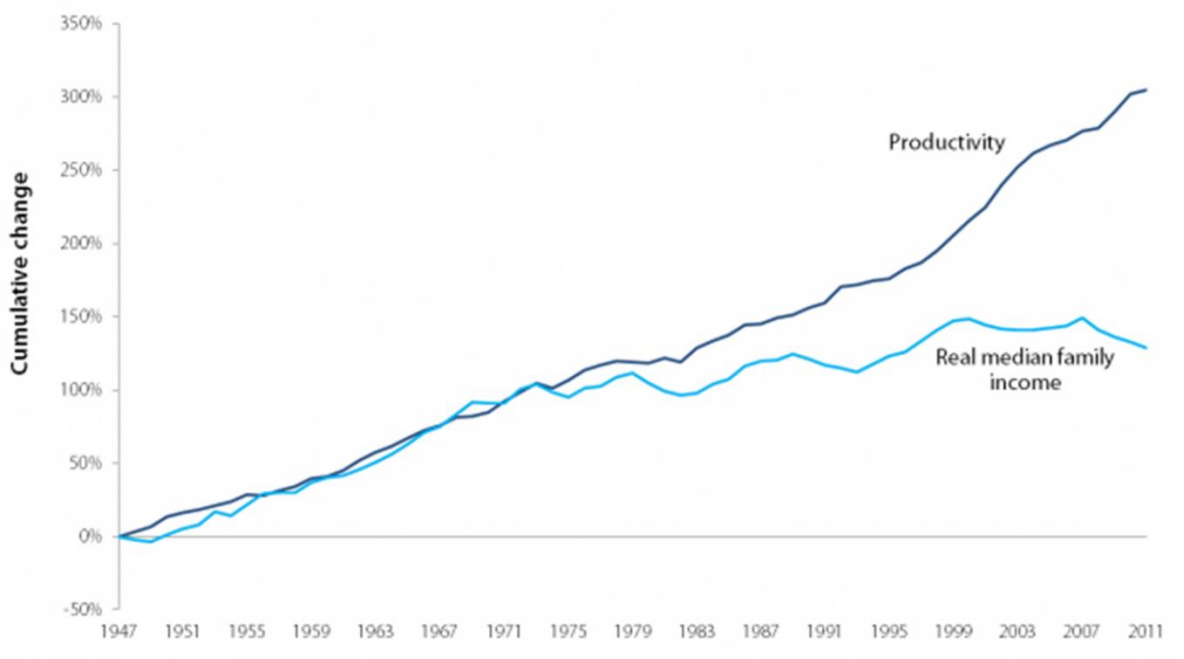
Figure 5: Manufacturing Employment and GDP, U.S., 1948-2015



In Montana, manufacturing employment also has declined, falling from 6 percent of employment in 1990 to 3.6 percent of employment in 2015.[12] In terms of GDP, manufacturing has remained relatively constant, making up 7.3 percent in 1997 and 7.4 percent in 2016.[13] These trends again show the resilience of manufacturing in terms of the value of manufactured goods, and the labor-saving effects of automation.

The "Great Decoupling" describes the fact that mechanization and productivity gains in the U.S. economy have not resulted in more middle-income jobs or higher family incomes.[14] In manufacturing, increases in productivity led to fewer, not more jobs. And in other sectors of the U.S. economy including agriculture, timber, mining, and retail trade where jobs are more easily automated, productivity gains also shed jobs and failed to raise family incomes. Coal mining in the U.S., for example, lost 160,000 jobs between 1980 and 2010[15] as coal production increased 40 percent nationally.[16] The consolidation and automation of timber mills increased productivity in that sector, but resulted in two-thirds of job losses in the Pacific Northwest between 1990 and 2000.[17]

Figure 6: The Great Decoupling



Source: Authors' analysis of Current Population Survey Annual Social and Economic Supplement *Historical Income Tables,* (Table F-5) and Bureau of Labor Statistics, *Productivity – Major Sector Productivity and Costs* Database (2012)

Many people worry that we're not making things anymore in the U.S. because of the decline in manufacturing, agriculture, timber, and mining. But the main point about innovation jobs is that they also create wealth in the economy. The value of an iPhone, for example, is primarily in the innovation jobs related to the software, industrial design, marketing, and distribution. Workers engaged in these activities earn higher wages and there are many more of them compared to the wages and jobs required to produce the raw materials the iPhone is made of and to assemble the iPhone. The same is true of agricultural products whose value today is generated by high-tech software and machinery that has replaced labor. In 1900, three in five Americans worked on farms. Today, less than two percent of Americans work on farms while the value of agricultural production has increased dramatically.

Five Montana Counties Captured 75 Percent of New Jobs

A significant implication of the shift to a services economy is most new jobs are locating in cities. Between 2000 and 2015, Montana's population grew by 14 percent and jobs grew by 20 percent. "If you live outside a city, though, there's a good chance you won't see much evidence of that growth. Just five counties — Missoula, Gallatin, Lewis and Clark, Flathead and Yellowstone — account for three-quarters of population growth in MT since 2000. In much of rural Montana, residents are slipping away — especially the children and families towns need to keep their schools open. Traditional economies — logging, agriculture, mining — are in decline or require fewer and fewer people to get the work done."[18]

Innovation jobs including software, research R&D, finance, and technology require access to finance, educated labor, and global markets—competitive advantages largely found in cities. Tech firms also tend to locate near each other—there is a snowballing, or clustering effect. By comparison, rural areas are not competing as successfully for these innovation jobs and are disproportionately affected by job losses in manufacturing and traditional resource sectors.

Figure 7: Montana Job Growth Since 2000

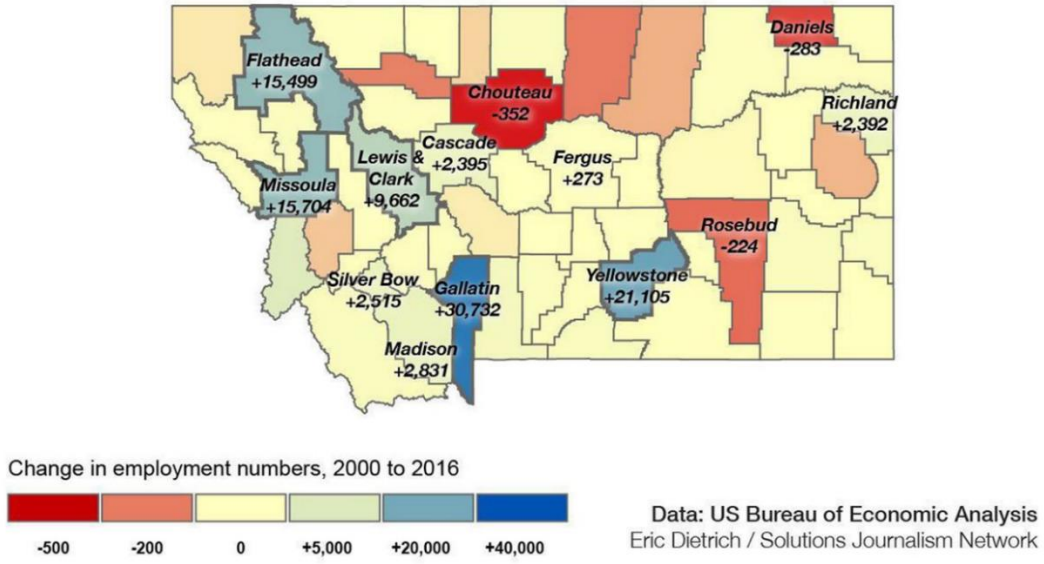


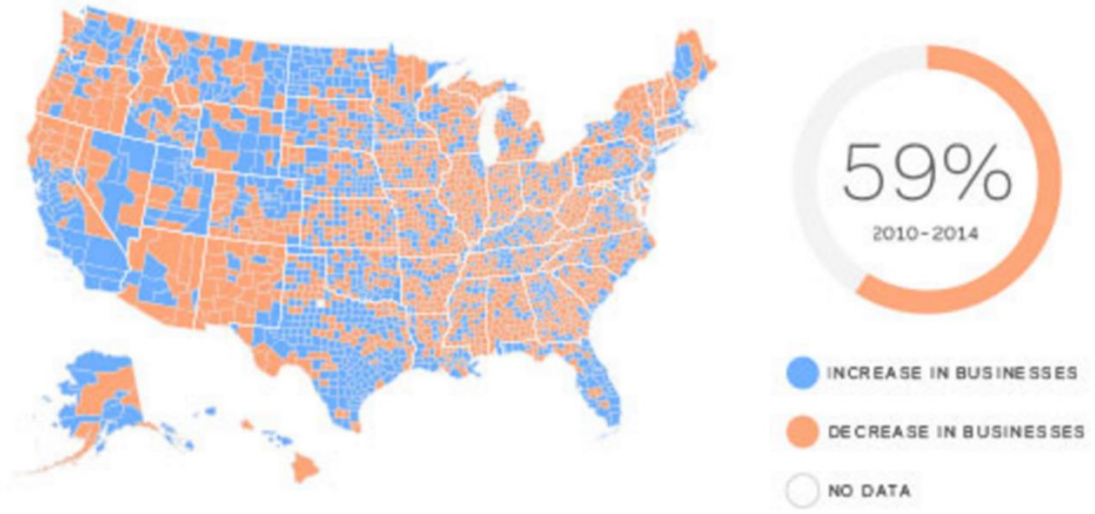
Figure 8: Job Growth For The Five Fastest-Growing Counties in Montana, 2000-2015[19]

County	New Jobs	% job change	% of net new Montana jobs	Leading job sectors (2015) – In order of importance
Gallatin	27,418	54%	25%	Government, retail trade, accommodation & food, construction, professional & technical services, health care & social assistance
Yellowstone	19,981	23%	18%	Health care & social assistance, retail trade, government, accommodation & food services, construction, professional & technical services
Missoula	14,116	21%	13%	Government, health care & social assistance, retail trade, accommodation & food services, professional & technical services, real estate & rental & leasing
Flathead	14,011	29%	13%	Retail trade, health care & social assistance, accommodation & food services, government, construction, real estate & rental & leasing
Lewis & Clark	8,979	23%	8%	Government, health care & social assistance, retail trade, accommodation & food services, professional & technical services

Montana's Job Concentration Is Consistent with U.S. Trends

Across the U.S. job growth and business formation has become more narrowly focused in major cities during each recent recovery following recessions. "Over the first five years of the 1990s recovery, 17 percent of counties continued to see net declines in business establishments. From 2002 to 2006, that figure rose to 37 percent — and had more than tripled to 59 percent by the 2010s. As with business establishments, the geography of job growth [in the U.S.] has narrowed from one recovery to the next. Following the 1991 recession, only 14 percent of counties continued to post job losses over the course of the next five years. That proportion rose to 28 percent in the 2000s and to 31 percent in the 2010s (three-quarters of which lost population at the same time)."[20]

Figure 9: 2010-2014, 59 Percent of Counties Saw More Business Establishments Close Than Open



Source: Economic Innovation Group, 2016

The "Three Wests" Helps Explain Diverging Opportunities

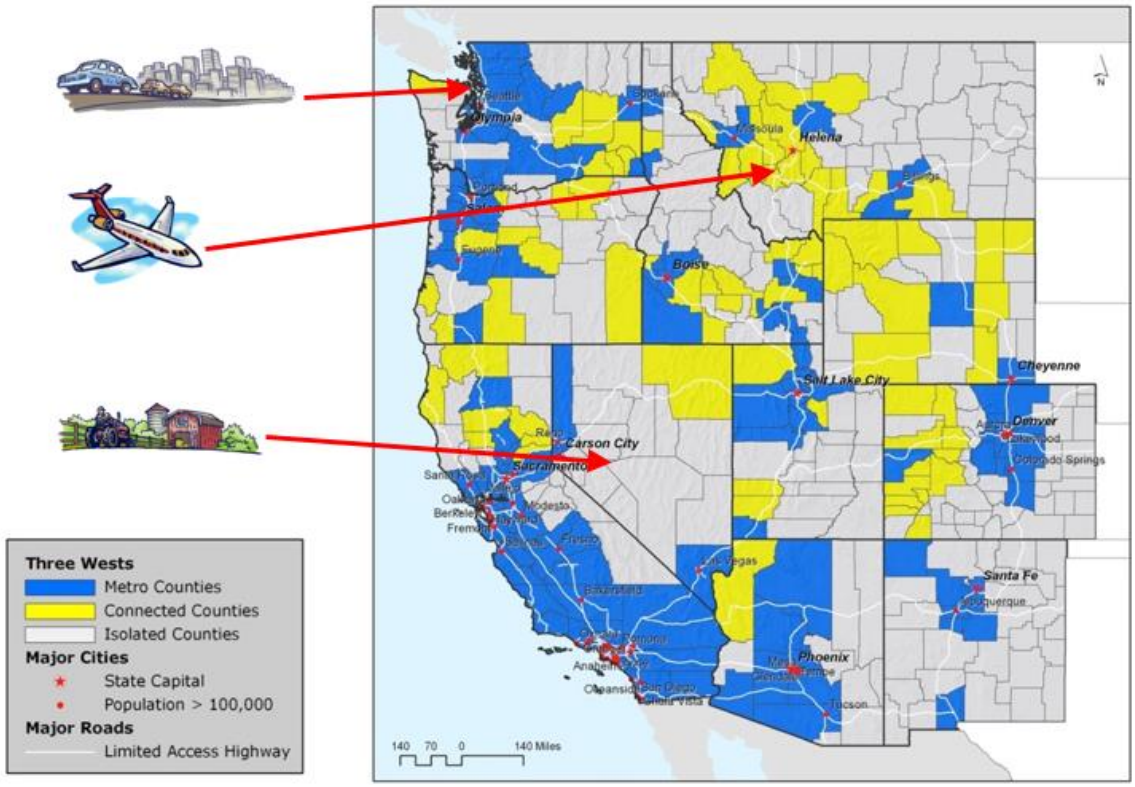
In the West, the structural shift is creating winners and losers among counties based on their access to metropolitan areas via road or air travel.[21] Access to cities is critical for economic development, and ideally access means the ability to meet clients, suppliers, and customers in person. The five Montana counties capturing most of the new jobs all have airports with convenient daily flights to major U.S. cities.

As Harvard economist Edward Glaeser points out in his book, The Triumph of the City: "For over a century pundits have been predicting that new forms of communication would make urban life irrelevant… [Technology was] supposed to eliminate the need for face-to-face meetings, yet business travel has soared over the last twenty years. To defeat the human need for face-to-face contacts, our technological marvels would need to defeat millions of years of human evolution that has made us into machines for learning from the people next to us."[22]

In the Three Wests framework, access is defined as a one-hour drive time to a metropolitan area or to an airport with convenient daily commuter flights to major cities. The point of the Three Wests is the same point made by Glaeser: we need access to transportation to major cities so we can meet face to face. Montana communities that are "Connected" to cities via air travel are capturing most of the growth and

can attract and create jobs in high-wage services sectors. "Isolated" counties that lack access to cities will remain more dependent on natural resources for extraction, recreation, and jobs. Rural broadband is necessary, but not always sufficient to connect rural communities to larger markets and opportunities.

Figure 10: The Three Wests



Questions About Montana's Changing Economy, Tax Structure, and Revenue

The link between Montana's changing economy and revenue collections is unclear. There is evidence, however, that the changes may be associated with a widening gap between where the economy is generating new wealth and where Montana's tax structure generates revenue today.

Moody's Analytics reports that nationally the underlying relationship between state tax revenues and the economy has changed considerably over time.[23] They attribute the change to two primary factors:

1. "Long-term changes in the U.S. economy, particularly its transition from a reliance on goods producers to an orientation around services." The structural change is important because many services are not taxed, leaving states more dependent on income taxes as tax revenue from goods production decline.
2. "The growing use of economically targeted tax incentives" that has the "unintended consequence of distorting the relationship between tax revenues and the underlying economy."

These same factors are playing out in Montana in similar, but distinct ways. Specifically:

- Montana's economy is transitioning from goods production to services in terms of jobs and income, and more recently in terms of contributions to GDP.
- Montana likely is not taxing the economy where it is growing. Goods producing industries, particularly mining, pay taxes that add to a larger share of their contribution to state GDP than do services industries. The transition to services may result in total tax collections that are a smaller share of total GDP.
- Montana's fiscal policies likely are exacerbating the revenue impacts of the transition to a services economy. Montana's use of resource taxes to lower other forms of taxation may expose the state to greater fiscal risks associated with short-term downturns in commodity prices and production, and from long-term changes in where the economy generates value.

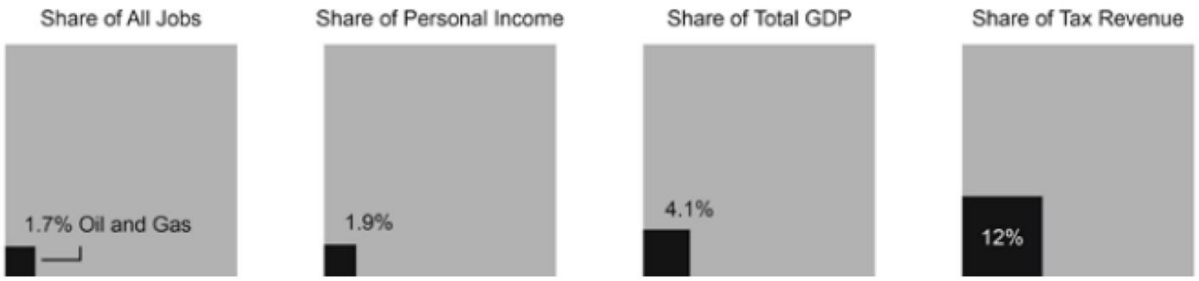
The two latter points are discussed in more detail below.

Do services industries pay relatively fewer taxes as a share of GDP when compared to non-services related sectors? (Is Montana Not Taxing the New Economy?)

Service sectors may pay less in taxes relative to their contribution to GDP because there are fewer revenue sources associated with these sectors when compared to corporate, income, and production taxes on traditional sectors, including timber, coal, oil and gas. For example, all industry sectors pay corporate income taxes, workers across all industries pay personal income taxes, and many of the state's other revenue sources are related to activities economy-wide, including vehicle taxes and fees, business licenses, gambling taxes, and others. By comparison, oil and gas companies also pay a production tax on the value of oil and gas extracted and royalties on state and federally owned resources.[24]

Figure 11 shows the relative contribution of oil and gas in Montana to total employment, labor income, state GDP, and state tax collections (for 2012).[25] Total tax revenue includes personal and corporate income tax, production taxes, and royalties (including state royalties and the state's share of federal royalties). The figure shows that oil and gas contributes a relatively larger share of total revenue to the state compared to its contributions to total state GDP, labor earnings, and employment.

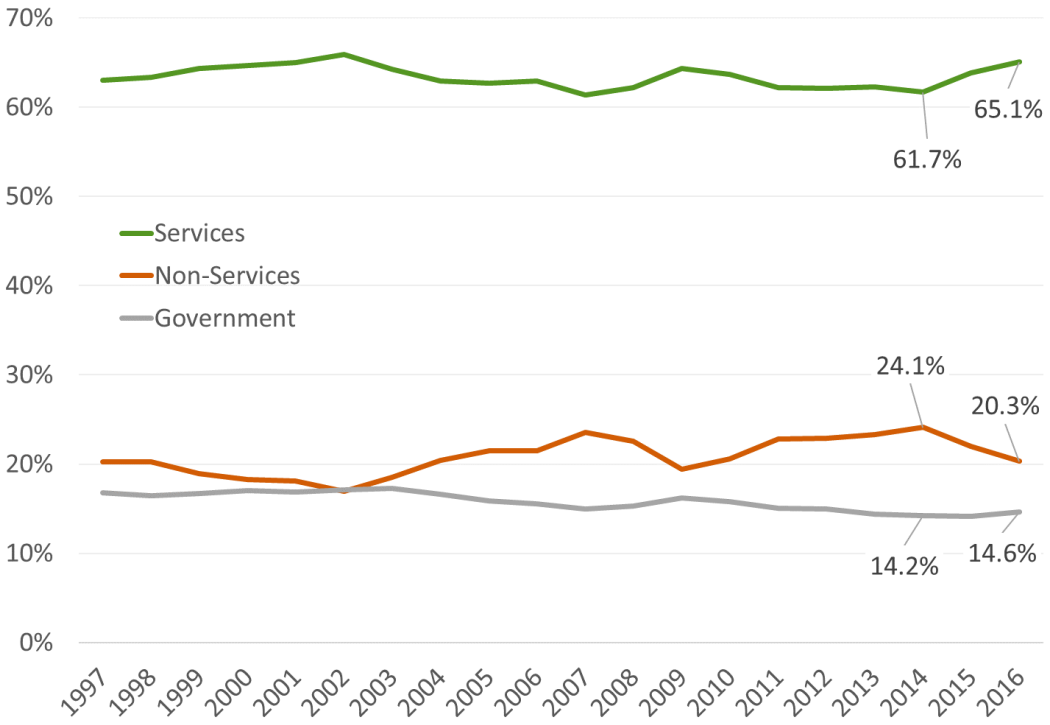
Figure 11: Oil & Gas and Services Share of Total, Montana, 2012



As noted earlier, the contribution to state GDP from non-services related industries remained relatively high until 2014, potentially masking the revenue impact of a transition in employment and personal income from non-services to services until very recently. A big question is if the more recent decline in GDP from non-services is associated with short-term volatility or if it is part of a longer-term trend. Coal extraction will remain important for some time, but the long-term trend is downward,[26] and the recent downturn in non-services GDP contributions to total GDP is led by a sharp decline in mining.

Manufacturing (including timber manufacturing), oil and gas, construction, and agriculture may be more consistent over time (while still showing substantial short term volatility).

Figure 12: Change in Gross Domestic Product by Source, Montana, 1997-2016[27]



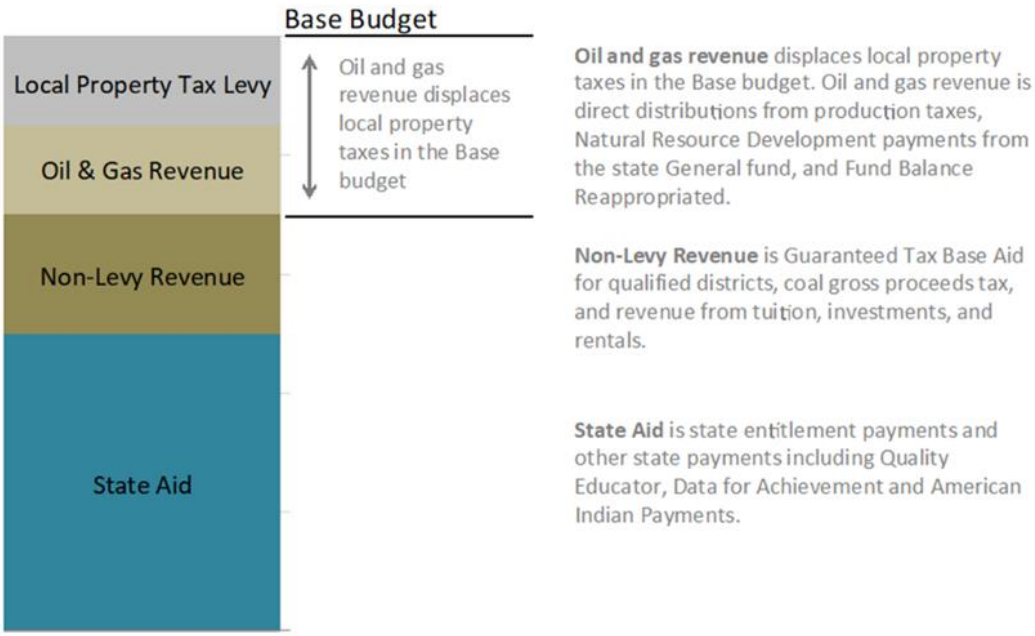
Have Montana's fiscal policies contributed to the gap between GDP and state tax revenue?

An over-reliance on resource taxes may be generating a gap between where the economy is generating value and where the state generates revenue. Another important question is if and how the state's tax structure contributes to the over-reliance in the first place.

Over time, the state has used production and gross receipts taxes to maintain low taxes on other sectors, including services. Montana's low taxes are consistent with the behavior of other resource-rich states that spent, on average, about 25 percent of resource revenue to cut other sources of revenue.[28] For example, Montana spends the state's share of oil and gas production taxes primarily to fund the state's annual operating budget, reducing the need for taxes on the rest of the economy. The state also requires local school districts to utilize their portion of the local share of oil and gas and coal gross receipts taxes to lower local school property tax levies.[29]

These tax expenditures allow the state and local governments to maintain low tax rates on the rest of the economy, but exacerbates fiscal crisis during busts and may be contributing to a long-term gap between revenue and growth in services.

Figure 13: Oil and Gas Revenue Is First Used to Lower Local Property Taxes



Endnotes

[1] U.S. Department of Commerce. 2016. *Bureau of Economic Analysis, Regional Economic Accounts*, Washington, D.C. Tables CA30, CA05, CA05N, CA35. As reported in the Economic Profile System, A Profile of Socioeconomic Measures, Headwaters Economics. https://headwaterseconomics.org/tools/economic-profile-system/.
[2] Ibid.
[3] Ibid.
[4] Lawson, M.M., Rasker, R. and Gude, P.H., 2014. The importance of non-labor income: an analysis of socioeconomic performance in western counties by type of non-labor income. *Journal of Regional Analysis & Policy*, 44(2), p.175.
[5] U.S. Department of Commerce. 2016. *Bureau of Economic Analysis, Regional Economic Accounts*, Washington, D.C. As reported in the Economic Profile System, A Profile of Non-Labor Income, Headwaters Economics. https://headwaterseconomics.org/tools/economic-profile-system/.
[6] Moretti, Enrico. 2012. *The new geography of jobs*. Houghton Mifflin Harcourt.
[7] U.S. Department of Commerce. 2016. *Bureau of Economic Analysis, Regional Economic Accounts*, Washington, D.C. Table CA25N. As reported in the Economic Profile System, A Profile of Socioeconomic Measures, Headwaters Economics. https://headwaterseconomics.org/tools/economic-profile-system/.
[8] U.S. Department of Commerce. 2016. *Bureau of Economic Analysis, Regional Economic Accounts*, Washington, D.C. Regional Economic Accounts.
[9] Hicks MJ and Devaraj S. 2015. *The Myth and the Reality of Manufacturing in America*. Muncie, IN: Center of Business and Economic Research, Ball State University.
[10] Author DH, Dorn D, and Hans GH. 2013. The China Syndrome: Local Labor Market Effects of Import Competition in the United States. *American Economic Review* 103(6): 2121–2168.
[11] Another partial explanation for the loss of manufacturing jobs may be attributed to how industries are counted in official statistics. Some functions, such as accounting and marketing, are outsourced and

therefore now counted as part of services rather than manufacturing. In other words, the U.S. still makes things, but engineering, finance, and marketing are no longer taking place in the factory and therefore these jobs are no longer counted as "manufacturing." According to one estimate, about a quarter of the decline in manufacturing in the last 60 years may be attributable to a shift in how industries are measured. See Berlingieri G. 2014. *Outsourcing and the shift from manufacturing to services*. VOX. Washington, DC: Center for Economic and Policy Research.

[12] U.S. Department of Commerce. 2016. *Bureau of Economic Analysis, Regional Economic Accounts*, Washington, D.C. Table CA25N. As reported in the Economic Profile System, A Profile of Socioeconomic Measures, Headwaters Economics. https://headwaterseconomics.org/tools/economic-profile-system/.

[13] U.S. Department of Commerce. 2016. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C.

[14] Brynjolfsson, E. and Mcafee, A., 2012. *Jobs, productivity and the great decoupling*. The New York Times, 11.

[15] U.S. Department of Labor, Bureau of Labor Statistics. 2016. Washington, D.C.

[16] U.S. Energy Information Administration and U.S. Mine Safety and Health Administration, *Annual Coal Production by State and Mine Type*, Washington, D.C. http://www.eia.gov/coal/data.cfm#production.

[17] Charnley S, Donoghue EM, Stuart C, Dillingham C, Buttolph LP, Kay WM, McLain RJ, Moseley C, Phillips RP, and Tobe L. 2006. *Northwest Forest Plan—the first 10 years (1994–2003): Socioeconomic monitoring results*. Gen. Tech. Rep. PNW-GTR-649. Portland, OR: USDA Forest Service, Pacific Northwest Research Station.

[18] Schimel, Kate. *The Montana Gap: Examining the disparity of urban and rural growth.* High Country News, Paonia, CO. http://missoulian.com/news/local/the-montana-gap-examining-the-disparity-of-urban-and-rural/article_accad330-1c48-5e21-ad72-27311b475b40.html.

[19] Headwaters Economics. 2017. *Montana's Economy, Public Lands, and Competitive Advantage*. Bozeman, MT. https://headwaterseconomics.org/economic-development/trends-performance/montanas-economy-and-protected-lands/.

[20] Economic Innovation Group. 2016. *The new map of economic growth and recovery*. Washington, D.C. http://eig.org/recoverymap.

[21] Rasker, R., P.H. Gude, J.A. Gude, J. van den Noort. 2009. The Economic Importance of Air Travel in High-Amenity Rural Areas. *Journal of Rural Studies* 25(2009): 343-353. https://headwaterseconomics.org/economic-development/trends-performance/three-wests-explained/.

[22] Glaeser, E.L., 2012. *Triumph of the city: How our greatest invention makes us richer, smarter, greener, healthier, and happier.* Penguin.

[23] White, Dan, Bernard Yaros, and Brittany Merollo. 2016. Stress-Testing States. Moody's Analytics.

[24] Montana Department of Revenue. 2016. *Biennial Report, Natural Resource Taxes*. Helena, MT.

[25] Haggerty, M.N. and J.H. Haggerty. 2015. "Energy Development as Opportunity and Challenge in the Rural West." In *The Rural West: Common Regional Issues*. D. Danbom, ed. University of Utah Press, 161-190.

[26] Montana Legislative Services Division. 2018. Senate Joint Resolution 5: Coal in Montana. Helena, MT. http://leg.mt.gov/content/Committees/Interim/2017-2018/EQC/Meetings/Jan-2018/sj5-coal-in-montana.pdf.

[27] U.S. Department of Commerce. 2016. *Bureau of Economic Analysis, Regional Economic Accounts*, Washington, D.C. Regional Economic Accounts.

[28] James, Alexander. 2015. US State Fiscal Policy and Natural Resources. *American Economic Journal: Economic Policy*, 7(3): 238-57.

[29] Montana Office of Public Instruction. 2014. *Understanding Montana School Finance and School District Budgets.* Helena, MT. http://leg.mt.gov/content/Committees/Interim/2015-2016/School-Funding/Meetings/UnderstandSchoolFinance.pdf.