A Profile of Public Land Amenities

Selected Geographies:

Lewis and Clark County, MT

Benchmark Geographies:

U.S.

Produced by
Economic Profile System
EPS
April 10, 2018

About the Economic Profile System (EPS)

EPS is a free, easy-to-use software application that produces detailed socioeconomic reports of counties, states, and regions, including custom aggregations.

EPS uses published statistics from federal data sources, including Bureau of Economic Analysis and Bureau of the Census, U.S. Department of Commerce; and Bureau of Labor Statistics, U.S. Department of Labor.

The Bureau of Land Management and Forest Service have made significant financial and intellectual contributions to the operation and content of EPS.

See headwaterseconomics.org/EPS for more information about the other tools and capabilities of EPS.

For technical questions, contact Patty Gude at eps@headwaterseconomics.org, or 406-599-7425.

HEADWATERS ECONOMICS

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Headwaters Economics is an independent, nonprofit research group. Our mission is to improve community development and land management decisions in the West.

NATIONAL SYSTEM OF PUBLIC LANDS
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

www.blm.gov

The Bureau of Land Management, an agency within the U.S. Department of the Interior, administers 249.8 million acres of America's public lands, located primarily in 12 Western States. It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE

www.fs.fed.us

The Forest Service, an agency of the U.S. Department of Agriculture, administers national forests and grasslands encompassing 193 million acres. The Forest Service's mission is to achieve quality land management under the "sustainable multiple-use management concept" to meet the diverse needs of people while protecting the resource. Significant intellectual, conceptual, and content contributions were provided by the following individuals: Dr. Pat Reed, Dr. Jessica Montag, Doug Smith, M.S., Fred Clark, M.S., Dr. Susan A. Winter, and Dr. Ashley Goldhor-Wilcock.

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Note to Users:

This is one of fourteen reports that can be created and downloaded from EPS Web. You may want to run another EPS report for either a different geography or topic. Topics include land use, demographics, specific industry sectors, the role of non-labor income, the wildland-urban interface, the role of amenities in economic development, and payments to county governments from federal lands. Throughout the reports, references to online resources are indicated in parentheses. These resources are provided as hyperlinks on each report's final page. The EPS reports are downloadable as Excel, PDF, and Word documents. For further information and to download reports, go to:

headwaterseconomics.org/eps

What is the breakdown of land ownership?

This page describes the land area (in acres) and the share of the area that is private and that is managed by various public agencies.

Land Ownership (Acres)

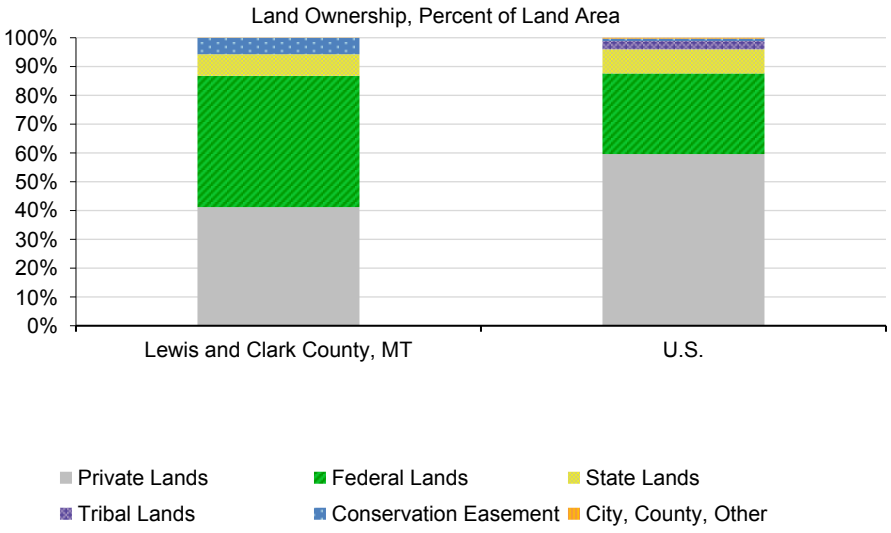
	Lewis and Clark County, MT	U.S.
Total Area	2,238,444	2,301,106,907
Private Lands	977,332	1,383,075,581
Conservation Easement	134,315	19,026,854
Federal Lands	1,081,932	649,455,740
Forest Service	996,857	192,507,338
BLM	73,162	242,951,818
National Park Service	0	78,773,678
Military	5,849	22,945,136
Other Federal	6,064	112,277,770
State Lands	177,552	194,258,469
State Trust Lands*	133,499	46,116,200
Other State	44,053	148,142,269
Tribal Lands	0	66,666,114
City, County, Other	1,629	7,650,993

Percent of Total

Private Lands	43.7%	60.1%
Conservation Easement	6.0%	0.8%
Federal Lands	48.3%	28.2%
Forest Service	44.5%	8.4%
BLM	3.3%	10.6%
National Park Service	0.0%	3.4%
Military	0.3%	1.0%
Other Federal	0.3%	4.9%
State Lands	7.9%	8.4%
State Trust Lands*	6.0%	2.0%
Other State	2.0%	6.4%
Tribal Lands	0.0%	2.9%
City, County, Other	0.1%	0.3%

* Most state trust lands are held in trust for designated beneficiaries, principally public schools. Managers typically lease and sell these lands for a diverse range of uses to generate revenues for the beneficiaries.

- Lewis and Clark County, MT has the largest share of federal public lands (48.3%), and the U.S. has the smallest (28.2%).
- The U.S. has the largest share of state public lands (8.4%), and Lewis and Clark County, MT has the smallest (7.9%).
- The U.S. has the largest share of private lands (60.1%), and Lewis and Clark County, MT has the smallest (43.7%).



Data Sources: U.S. Geological Survey, Gap Analysis Program. 2016. Protected Areas Database of the United States (PADUS) version 1.4

What is the breakdown of land ownership?

What do we measure on this page?

This page describes the land area (in acres) and the share of the area that is private and that is managed by various public agencies.

Public Land Amenities: The qualities of public lands that make a region an attractive place to live, recreate, and work. They may consist, for example, of scenic vistas, recreational opportunities, and wildlife habitat. For some communities, surrounding public lands may serve an economic role by creating a setting that attracts and retains people and businesses. For others, the recreational opportunities may attract tourists. And for some, the opportunities to hunt, fish, and view wildlife may be important to local residents and serve as a magnet that keeps them from leaving.

Why is it important?

Public lands provide recreational, environmental, and lifestyle amenities that can stimulate growth. While amenities alone are typically not sufficient to foster growth, they have increasingly been shown to contribute to population growth and economic development.

Many factors can contribute to economic growth, including access to raw materials, workforce quality, availability of investment capital, and transportation networks. In recent decades, amenities have also become increasingly important for people who can choose where to live and work, and for businesses that are not subject to location constraints. Employers now advertise public land amenities to attract and retain a talented workforce. Communities are taking advantage of nearby public lands to attract new businesses, as well as retirement and investment income. Thus, amenities provided by public lands can be considered an economic asset. For a public lands manager, this means proposed activities should be evaluated in the context of how they may impact public lands amenities and, in turn, an economy that may be dependent on these resources.

Methods

This report displays a number of indicators that are commonly present when public land amenities play a role in economic development. No single indicator is sufficient proof of an economic contribution by public lands amenities. Rather, when these indicators are taken as a whole, and when combined with the relevant peer-reviewed scientific literature, they can provide guidance on how to include in a planning document the idea and data that one of the economic contributions of public lands is a setting that attracts and retains people and business. The information in this report may have to be supplemented with additional resources, such as surveys of area residents and business leaders, to discern whether and how public land amenities play an economic role in an area.

No publicly available federal database contains land ownership area statistics. The data presented in this report were calculated using Geographic Information System (GIS) tools. Two GIS datasets were utilized: U.S. Census Bureau's TIGER/Line County Boundaries 2012: census.gov/geo/www/tiger/tgrshp2012/tgrshp2012.html *(2)* and U.S. Geological Survey's Protected Areas Database (PADUS) version 1.3: gapanalysis.usgs.gov/padus/ *(3)*. Although every attempt was made to use the best available land ownership data, the data sometimes has errors or becomes outdated. Please report any inaccuracies to eps@headwaterseconomics.org.

Additional Resources

For a general analysis on the role of amenities in economic development, see: McGranahan, D. A. 1999. “Natural Amenities Drive Rural Population Change.” Economic Research Service, U.S. Department of Agriculture, Food and Rural Economics Division. AER781: ers.usda.gov/publications/aer-agricultural-economic-report/aer781.aspx *(1)*.

For an analysis of the economic role of protected public lands, see: Eichman H, G. L. Hunt, J. Kerkvliet, and A.J. Plantinga. 2010. "Local Employment Growth, Migration, and Public Land Policy: Evidence from the Northwest Forest Plan." Journal of Agricultural and Resource Economics. 35(2): 316-333.

For a review of the literature on the relationship between public land amenities and economic development and migration, see: Garber-Yonts, B. E. 2004. "The Economics of Amenities and Migration in the Pacific Northwest: Review of Selected Literature with Implications for National Forest Management." USDA Forest Service, General Technical Report (PNW-617): 01-54.

For an example of a survey conducted to assess the public’s perceptions of quality of life and how public lands actions may affect these, see: Reed, P. and G. Brown. 2003. "Public land management and quality of life in neighboring communities - The Chugach National Forest planning experience." Forest Science. 49(4): 479-498.

Data Sources

U.S. Geological Survey, Gap Analysis Program. 2016. Protected Areas Database of the United States (PADUS) version 1.4; Rasker, R. 2006. "An Exploration Into the Economic Impact of Industrial Development Versus Conservation on Western Public Lands." Society and Natural Resources. 19(3): 191-207

What are the different types of federal lands?

This page describes the size (in acres) and share of federal public lands managed for various purposes under differing statutory authority (see study guide text for more details on federal public land management classifications). For purposes of this section, federal public lands have been defined below as Type A, B, or C in order to more easily distinguish lands according to primary or common uses and/or conservation functions, activities, permitted transportation uses, and whether they have a special designation (often through Congressional action).

Type A: National Parks and Preserves (NPS), Wilderness (NPS, FWS, FS, BLM), National Conservation Areas (BLM), National Monuments (NPS, FS, BLM), National Recreation Areas (NPS, FS, BLM), National Wild and Scenic Rivers (NPS, FS, BLM), Waterfowl Production Areas (FWS), Wildlife Management Areas (FWS), Research Natural Areas (FS, BLM), Areas of Critical Environmental Concern (BLM), and National Wildlife Refuges (FWS).

Type B: Wilderness Study Areas (NPS, FWS, FS, BLM), Inventoried Roadless Areas (FS).

Type C: Public Domain Lands (BLM), O&C Lands (BLM), National Forests and Grasslands (FS).

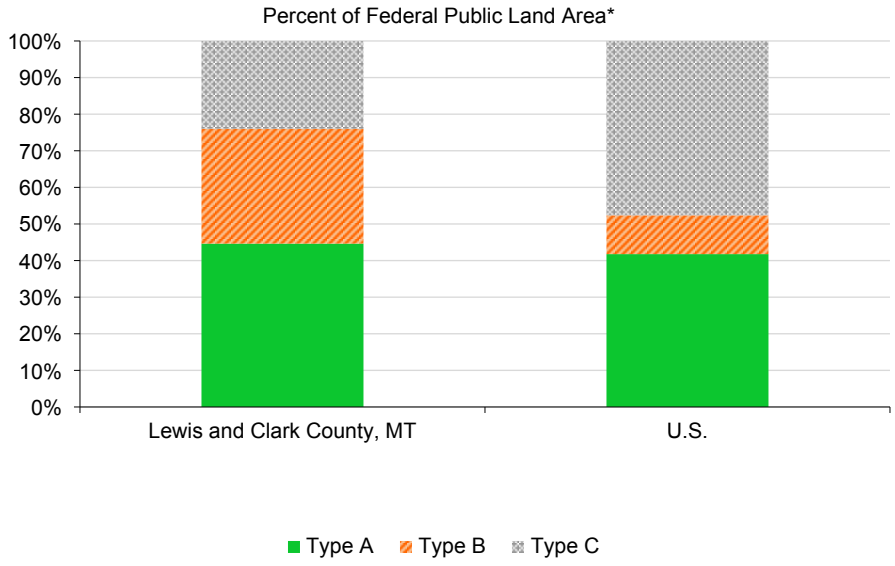
NPS = National Park Service; FS = Forest Service; BLM = Bureau of Land Management; FWS = Fish and Wildlife

Relative Management Designations of Federal Lands (Acres)*

	Lewis and Clark County, MT	U.S.
Total Area of Type A, B, and C	1,077,023	623,478,537
Type A	480,759	260,397,439
Type B	337,884	66,039,395
Type C	258,380	297,041,703
Percent of Total		
Type A	44.6%	41.8%
Type B	31.4%	10.6%
Type C	24.0%	47.6%

* Year for data varies by geography and source. See data sources below for more information.

- Lewis and Clark County, MT has the largest share of Type A land (44.6%), and the U.S. has the smallest (41.8%).
- Lewis and Clark County, MT has the largest share of Type B land (31.4%), and the U.S. has the smallest (10.6%).
- The U.S. has the largest share of Type C land (47.6%), and Lewis and Clark County, MT has the smallest (24%).



Data Sources: U.S. Geological Survey, Gap Analysis Program. 2016. Protected Areas Database of the United States (PADUS) version 1.4; Rasker, R. 2006. "An Exploration Into the Economic Impact of Industrial Development Versus Conservation on Western Public Lands." Society and Natural Resources. 19(3): 191-207.

Study Guide and Supplemental Information

What are the different types of federal lands?

What do we measure on this page?

This page describes the size (in acres) and share of federal public lands managed for various purposes under differing statutory authority. For purposes of this section, federal public lands have been defined below as Type A, B, or C in order to more easily distinguish lands according to primary or common uses and/or conservation functions, activities, permitted transportation uses, and whether they have a special designation (often through Congressional action).

Type A lands tend to have more managerial and commercial use restrictions than Type C lands, represent smaller proportions of total land management areas (except within Alaska), and have a designation status less easily changed than Type B lands. In most other respects Type B lands are similar to Type A lands in terms of activities allowed. Type C lands generally have no special designations, represent the bulk of federal land management areas, and may allow a wider range of uses or compatible activities -often including commercial resource utilization such as timber production, mining and energy development, grazing, recreation, and large-scale watershed projects and fire management options (especially within the National Forest System and Public Domain lands of the BLM).

As more popularly described: Type A lands are areas having uncommon bio-physical and/or cultural character worth preserving; Type B lands are areas with limited development and motorized transportation worth preserving; and Type C lands are areas where the landscape may be altered within the objectives and guidelines of multiple use.

Why is it important?

Some types of federal lands, such as National Parks and Wilderness, can be associated with above average economic growth. These lands by themselves do not guarantee economic growth. But when combined with other factors, such as an educated workforce and access to major markets via airports, they have been shown to be statistically significant predictors of growth.

Methods

The classifications offered on this page are not absolute categories. They are categories of relative degrees of management priority, categorized by land designation. Lands such as Wilderness and National Monuments, for example, are generally more likely to be managed for conservation and recreation, even though there may exist exceptions (e.g., a pre-existing mine in a Wilderness area or oil and gas development in a National Monument). Forest Service and BLM lands without designations such as Wilderness or National Monuments are more likely to allow commercial activities (e.g., mining, timber harvesting), even though there are exceptions.

Land defined as either Type A, B, or C includes areas managed by the National Park Service, the Forest Service, the Bureau of Land Management, or the Fish and Wildlife Service. Lands administered by other federal agencies (including the Army Corps of Engineers, Bureau of Reclamation, Department of Agriculture, Department of Defense, Department of Energy, and Department of Transportation) were not classified into Type A, B, or C. Therefore, the total acreage of Type A, B, and C lands may not add to the Total Federal Land Area reported on page 1. Private lands and areas managed by state agencies and local government are not included in this classification. These definitions (Type A, B, and C) of land classifications are not legal or agency-approved, and are provided only for comparative purposes. A caveat: The amount of acreage in particular land types may not be the only indicator of quality. For example, Wild and Scenic Rivers may provide amenity values far greater than their land acreage would indicate.

Additional Resources

Studies, articles and literature reviews on the economic contribution of protected public lands are available from: headwaterseconomics.org/land/reports/protected-lands-value *(4)*.

See also: Lorah, P. and R. Southwick. 2003. "Environmental Protection, Population Change, and Economic Development in the Rural Western United States" Population and Environment. 24(3): 255-272; and Holmes, P. and W. Hecox. 2002. “Does Wilderness Impoverish Rural Areas?” International Journal of Wilderness. 10(3): 34-39.

For an analysis on the effect on local economies, in particular on resource-based industries, from Wilderness designations, see: Duffy-Deno, K. T.. 1998. "The Effect of Federal Wilderness on County Growth in the Intermountain Western United States." Journal of Regional Science. 38(1): 109-136.

For the results of a national survey of residents in counties with Wilderness, see: Rudzitis, G. and H.E. Johansen. 1991. "How Important is Wilderness? Results from a United States Survey." Environmental Management. 15(2): 227-233.

For analysis of the role of transportation in high-amenity areas, see: 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.

Data Sources

U.S. Geological Survey, Gap Analysis Program. 2016. Protected Areas Database of the United States (PADUS) version 1.4; Rasker, R. 2006. "An Exploration Into the Economic Impact of Industrial Development Versus Conservation on Western Public Lands." Society and Natural Resources. 19(3): 191-207

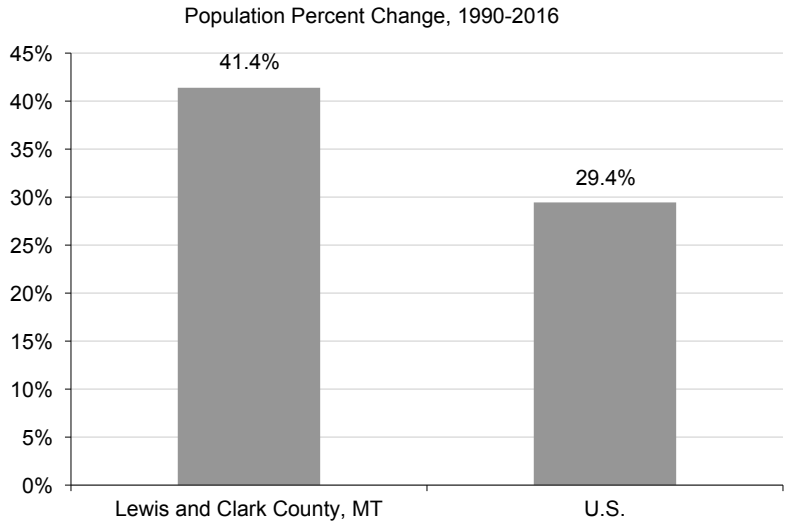
What are population trends?

This page compares the size of the population and population change since 1990.

Population Change, 1990-2016

	Lewis and Clark County, MT	U.S.
Population 1990	47,586	249,622,814
Population 2000	55,886	282,162,411
Population 2016	67,282	323,127,513
Population Change 1990-2016	19,696	73,504,699
Percent Change 1990-2016	41.4%	29.4%

- Between 1990 and 2016, Lewis and Clark County, MT had the largest percent change in population (41.4%), and the U.S. has the smallest (29.4%).



Data Sources: U.S. Department of Commerce. 2017. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C.

What are population trends?

What do we measure on this page?

This page compares the size of the population and population change since 1990.

Why is it important?

Rapid population increase may indicate that amenities on public lands play a role stimulating growth in an area. This trend can be seen in many counties and regions during the 1990s and early 2000s (see the Additional Resources citations referenced throughout this report for more information on amenity-led migration).

Population growth by itself is not sufficient evidence that the amenities of public lands contribute to growth. This indicator should be considered together with all other indicators in this report, along with the recommended additional reading, as resources that help the user to understand amenity-driven growth and how to write about it for specific geographies. This work may have to be supplemented with additional resources, such as surveys of local residents and businesses.

Additional Resources

For a discussion of population and economic growth in relation to amenities and the restructuring of the economy that began to take place in the 1980s, see: Rudzitis, G. 1989. “Migration, Places, and Nonmetropolitan Development." Urban Geography. 10(4): 396-411.

For a discussion of the relationship between environmental amenities and population growth, see: Hunter, L. M., J. D. Boardman, and J.M.S. Onge. 2005. "The Association Between Natural Amenities, Rural Population Growth, and Long-Term Residents' Economic Well-Being." Rural Sociology. 70(4): 452-469.

See also: Nelson, P. B. 1997. "Migration, Sources of Income, and Community Change in the Non-Metropolitan Northwest." Professional Geographer. 49(4): 419-430.

For analysis of the reasons for migration to the rural West, see: Cromartie, J.B. and J.M. Wardwell. 1999. “Migrants Settling Far and Wide in the Rural West.” Rural Development Perspectives. 14(2): 2-8.

For a critical examination of whether amenities play a role in development (including a review of the literature), see: Gottlieb, P.D. 1994. “Amenities as an Economic Development Tool: Is there Enough Evidence?” Economic Development Quarterly. 8(3): 270-285.

Data Sources

U.S. Department of Commerce. 2017. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C.

How have the components of population changed?

This page describes components of population change. Total population change is the sum of natural change (births minus deaths) and migration (international plus domestic).

Population Change, 2000-2016

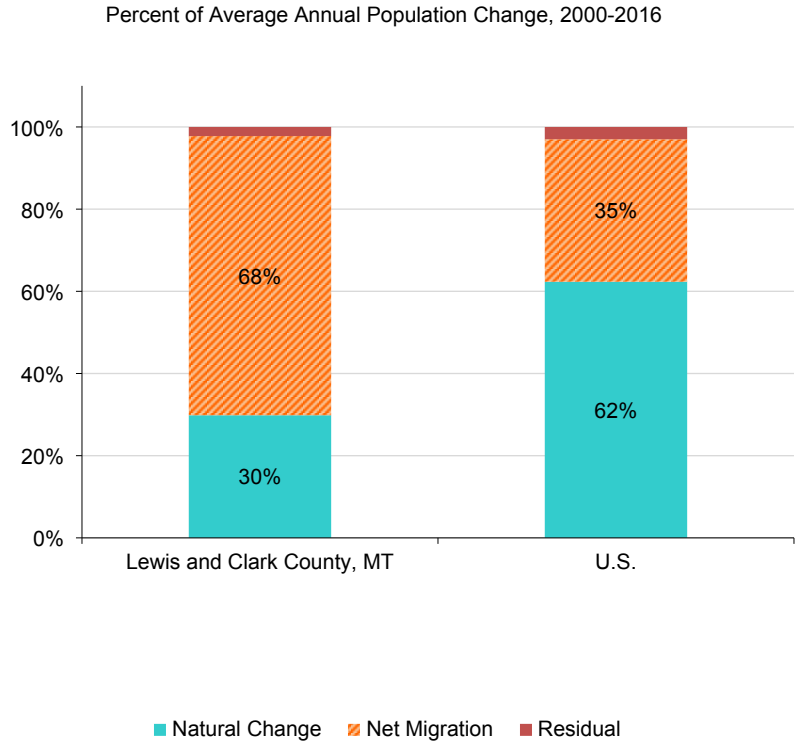
	Lewis and Clark County, MT	U.S.
Population Change, 2000-2016	11,404	na
Average Annual Population Change	648	2,109,504
From Natural Change	202	1,322,823
Births	728	3,285,600
Deaths	525	1,962,776
From Net Migration	460	735,868
International Migration	35	735,868
Domestic Migration	425	na
From Residual	-15	63,517

Percent of Average Annual Population Change, 2000-2016

Natural Change	29.8%	62.3%
Net Migration	67.9%	34.7%
Residual	2.2%	3.0%

Note that percentages may not add to 100% due to residual in estimating process.

- From 2000 to 2016, the U.S. had the largest share of population change from natural change (62.3%), and Lewis and Clark County, MT had the smallest (29.8%).
- From 2000 to 2016, the U.S. had the largest share of population change from migration (3%), and Lewis and Clark County, MT had the smallest (2.2%).



Data Sources: U.S. Department of Commerce. 2017. Census Bureau, Population Division, Washington, D.C.

How have the components of population changed?

What do we measure on this page?

This page describes components of population change. Total population change is the sum of natural change (births minus deaths) and migration (international plus domestic).

The purpose of this page is to discern how much of the growth in population is due to net in-migration. In the figure Population Change, Natural and Migration, a migration bar (yellow) that is above zero indicates positive net migration; a migration bar below zero indicates negative net migration.

Why is it important?

A growing body of literature has shown that federal public lands can play a role in stimulating amenity migration, defined as the permanent movement to a locality by people who have been influenced to move in part by the presence of environmental, recreational, social, and cultural amenities.

It is useful to understand the components of population change because they show whether growth (or decline) is led by migration, and if it derives from international or internal migration. If migration accounts for significant population growth, it may be helpful to look for linkages with other potential amenity variables such as a rise in relatively footloose business (such as services) and the growth of non-labor income (from investments and retirement). Subsequent pages of this report explore these and other potential amenity variables. The Additional Resources offered below also help to explain reasons for in-migration, especially as they relate to amenities provided by public lands.

In-migration by itself is not sufficient evidence that public land amenities contribute to growth. This indicator should be taken together with all other indicators in this report, along with the recommended additional reading, as resources that help the user understand amenity-driven growth for specific geographies. This work may have to be supplemented with additional resources, such as surveys of local residents and businesses. In addition, there are other reasons for migration that may not be related to amenities, such as the migration of oil and gas workers into an area for fossil fuels production.

Methods

The U.S. Census Bureau makes a minor statistical correction, called a "residual," as part of its estimates of foreign born emigrants. Because of this correction, natural change plus net migration may not add to total population.

Note: International Migration consists of people who have moved into the local geography directly from a foreign country.

Additional Resources

For a discussion of the role of amenities in people's migration decisions, see: Knapp, T. A. and P. E. Graves. 1989. "On the Role of Amenities in Models of Migration and Regional Development." Journal of Regional Science. 29(1): 71-87.

For a regional example of the causes and consequences of "amenity migration," see: Loeffler, R. and, E. Steinicke. 2007. "Amenity Migration in the U.S. Sierra Nevada." Geographical Review. 97(1): 67-88.

For a review of the theory that people decide where to live first and then create jobs, see: Vias, A. C. 1996. "Jobs Follow People in the Rural Rocky Mountain West." Rural Development Perspectives. 14(2): 14-23.

A book on the international phenomena of people moving to places for their amenities: Moss, A.G.L. 2006. The Amenity Migrants: Seeking and Sustaining Mountains and Their Cultures. Cromwell Press. Trowbridge, pp. 55-72.

For a glossary of terms used by the Bureau of the Census, see: census.gov/popest/about/terms.html *(5)*.

For methods used by the Bureau of the Census, see: census.gov/popest/methodology/index.html *(6)*.

Data Sources

How have residential development patterns changed?

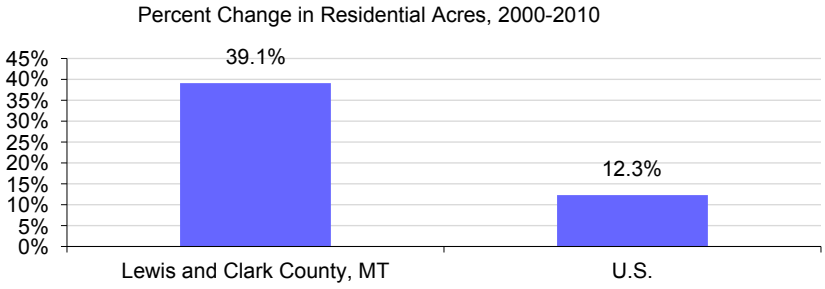
This page describes differences in the conversion of open space to residential development and residential acres per person, and the percent of homes that are second homes.

Residential Development 2000-2010

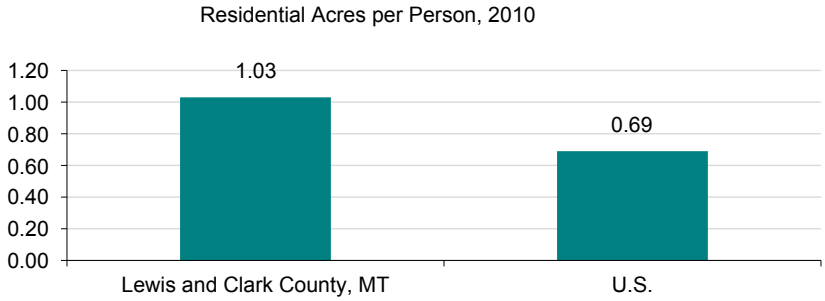
	Lewis and Clark County, MT	U.S.
Residential Acres 2000	47,120	190,918,648
Residential Acres 2010	65,553	214,475,717
Change in Res. Acres 2000-2010	18,433	23,557,069
Percent Change	39.1%	12.3%
Residential Acres/Person, 2000	0.84	0.67
Residential Acres/Person, 2010	1.03	0.69
Change in Res. Ac./Person 2000-2010	0.19	0.02
Total Residential Units 2016*	30,646	134,054,899
Second Homes in 2016*	2,344	5,368,085
Percent Second Homes	7.6%	4.0%

* The data in this table are calculated by ACS using annual surveys conducted during 2012-2016 and are representative of average characteristics during this period.

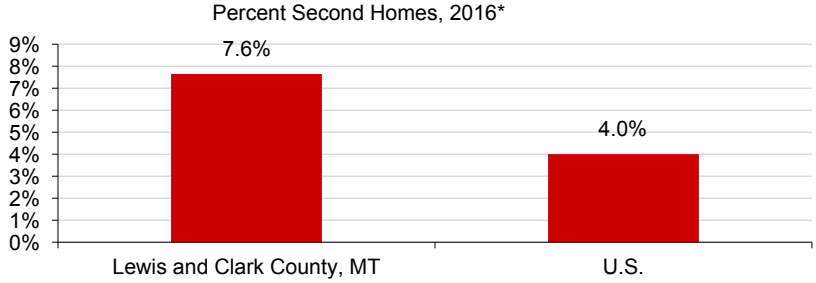
- From 2000 to 2010, Lewis and Clark County, MT had the largest percent change in residential development (39.1%), and the U.S. had the smallest (12.3%).



- From 2000 to 2010, Lewis and Clark County, MT had the largest average acreage in residential development per person (1.03 acres), and the U.S. had the smallest (0.69 acres).



- In 2000, Lewis and Clark County, MT had the largest share of second homes as a percent of total homes (7.6%), and the U.S. had the smallest (4%).



Data Sources: Theobald, DM. 2013. Land use classes for ICLUS/SERGoM v2013. Unpublished report, Colorado State University; U.S. Department of Commerce. 2017. Census Bureau, American Community Survey Office, Washington, D.C.

How have residential development patterns changed?

What do we measure on this page?

This page describes differences in the conversion of open space to residential development and residential acres per person, and the percent of homes that are second homes.

The rate of development is expressed as the percent change in acres used for residential development from 2000 to 2010 (the latest years available from the Decennial Census). Land consumption is expressed in terms of residential acres per person. These figures refer only to residential development and do not include lot sizes greater than 40 acres. Per capita consumption of land used for housing is a measure of the pattern of development. Areas with negative values of change in residential acres/person indicate more dense development in 2010 than in 2000. Large positive values of change indicate that an area was substantially more sprawled in 2010 than it was in 2000.

Second Homes: These are residences intended for use only in certain seasons or for weekends or other occasional use throughout the year.

Why is it important?

One of the characteristics of growth that is associated with the presence of public land amenities is a rapid conversion of open space (including agricultural lands) for residential development, and a relatively high proportion of homes as second homes.

Residential development by itself is not sufficient evidence that the amenities of public lands contribute to growth. This indicator should be taken together with all other indicators in this report, along with the recommended additional reading, as resources that help the user understand amenity-driven growth and how to write about it for specific geographies. This work may have to be supplemented with additional resources, such as surveys of local residents and businesses.

Methods

Comparisons are made between 2000 and 2010. These are the latest published data available from the Decennial Census.

Additional Resources

The effect of housing development on protected public lands is analyzed by: Radeloff, V.C., S.I. Stewart, T.J. Hawbaker, U. Gimmi, A.M. Pidgeon, C.H. Flather, R.B. Hammer and D.P. Helmers. 2010. “Housing Growth in and Near United States Protected Areas Limits Their Conservation Value." Proceeding of the National Academy of Sciences of the United States of America. 107(2): 940-945. See: pnas.org/content/107/2/940 *(7)*.

For an analysis of the reasons for a loss of open space, see: Kline, J. D. 2006. "Public Demand for Preserving Local Open Space." Society & Natural Resources 19(7): 645-659. Also: Vias, A. C., J. I. Carruthers. 2005. "Regional Development and Land Use Change in the Rocky Mountain West, 1982-1997" Growth and Change 36(2): 244-272.

For an analysis of the ecological effects of exurban development, see: Hansen, A. J., R. L. Knight, J.M. Marzluff, S. Powell, K. Brown, P.H. Gude, and K. Jones. 2005. “Effects of Exurban Development on Biodiversity: Patterns, Mechanisms, and Research Needs." Ecological Applications. 15(6): 1893-1905. See also: Also: Gude, P.H., Hansen, A.J., Rasker, R., Maxwell, B. 2006. "Rates and Drivers of Rural Residential Development in the Greater Yellowstone." Landscape and Urban Planning. 77: 131-151.

For a discussion of the importance of population density in analyzing the impacts of exurban development, see: Theobald, D. M., et al. (2001). "Land-Use Dynamics Beyond the American Urban Fringes." Geographical Review. 91(3): 544-564.

For West-wide data and analyses on housing patterns in wildfire prone areas, run the EPS Development and the Wildland-Urban Interface report.

Data Sources

Theobald, DM. 2013. Land use classes for ICLUS/SERGoM v2013. Unpublished report, Colorado State University; U.S. Department of Commerce. 2017. Census Bureau, American Community Survey Office, Washington, D.C.

How important are service sectors?

This page describes the number of jobs and share of total jobs in services related industries and non-services related industries.

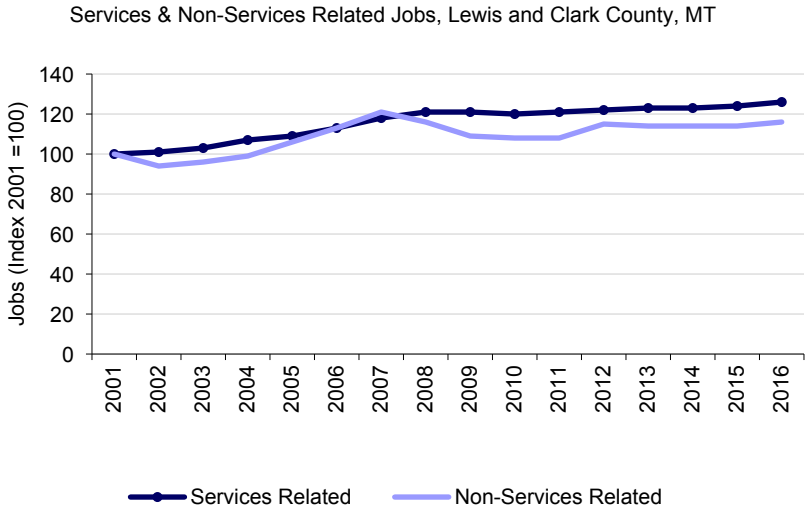
Services Related Employment, 2016

	Lewis and Clark County, MT	U.S.
Total Non-Government Employment	37,081	169,368,400
Services Related	~32,206	141,191,600
Non-Services Related	~4,875	28,176,800

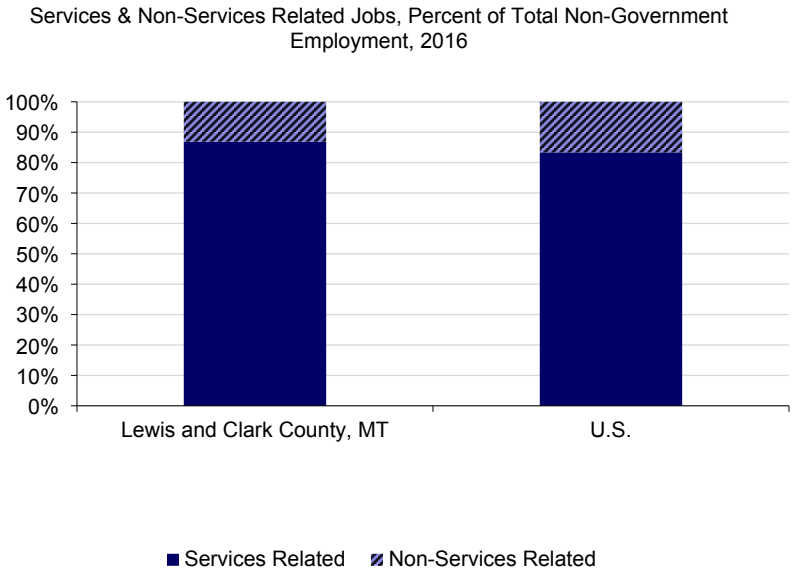
Percent of Total

Services Related	~86.9%	83.4%
Non-Services Related	~13.1%	16.6%

- From 2001 to 2016, services related jobs in the region grew by 26 percent. Over the same period, non-services related jobs grew by 16 percent.



- In 2016, Lewis and Clark County, MT had the largest share of total jobs in services related industries (86.9%), and U.S. had the smallest (83.4%).



Data Sources: U.S. Department of Commerce. 2017. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C.

How important are service sectors?

What do we measure on this page?

This page describes the number of jobs and share of total jobs in services related industries and non-services related industries.

Services: Consists of the following sectors: Utilities; Wholesale Trade; Retail Trade; Transportation & Warehousing Information; Finance & Insurance; Real Estate, Rental & Leasing; Professional, Scientific, & Tech., Mgmt. of Companies & Enterprises; Administrative & Support Services; Educational Services; Health Care & Social Assistance; Arts, Entertainment, & Recreation; Accommodation & Food Services; and Other Services.

Non-Services: Consists of the following sectors: Mining; Construction; Manufacturing; and Agriculture, Forestry, Fishing, and Hunting.

Why is this important?

One characteristic of growth associated with the presence of public land amenities is above average growth in services occupations and businesses. Some services related jobs are associated with a growth in recreation and tourism. There are also services occupations and businesses that, due to telecommunications technology and transportation networks, are relatively "footloose," i.e., able to move to locations in part for quality of life reasons, including the amenities provided by public lands. Examples of potentially footloose occupations and businesses include architects, software developers, engineers, financial and management consultants, and researchers.

A growth in services by itself is not sufficient evidence that the amenities of public lands contribute to growth. This indicator should be taken together with all other indicators in this report, along with the recommended additional reading, as resources that help the user understand amenity-driven growth and how to write about it for specific geographies. This work may have to be supplemented with additional resources, such as surveys of local residents and businesses.

Methods

Some data are withheld by the federal government to avoid the disclosure of potentially confidential information. Headwaters Economics uses data from the U.S. Department of Commerce to estimate these data gaps. These values are indicated with tildes (~).

Additional Resources

For more detail on the various components of services, run the EPS Services report. For more information on industries that include travel and tourism (and include some service industries), run the EPS Travel and Tourism report.

For an analysis of the relationship between amenities and the growth of service-based economies, see: Shumway, J. M., S. M. Otterstrom. 2001. "Spatial Patterns of Migration and Income Change in the Mountain West: The Dominance of Service-Based, Amenity-Rich Counties." Professional Geographer. 53(4): 492-502.

See also: Beyers, W. and D. Lindahl. 1996. "Lone Eagles and High Fliers in the Rural Producer Services." Rural Development Perspectives. 11: 2-10; and Beyers, W. B., P. B. Nelson. 2000. "Contemporary Development Forces in the Nonmetropolitan West: New Insights from Rapidly Growing Communities." Journal of Rural Studies. 16(4): 459-474.

For an analysis of the growth of "footloose" and knowledge-based industries, whose owners are attracted by amenities, see 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.

Data Sources

U.S. Department of Commerce. 2017. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C.

How important is non-labor income?

This page describes components of non-labor income and compares non-labor income to labor earnings. It also shows how non-labor income has changed over time compared to labor earnings.

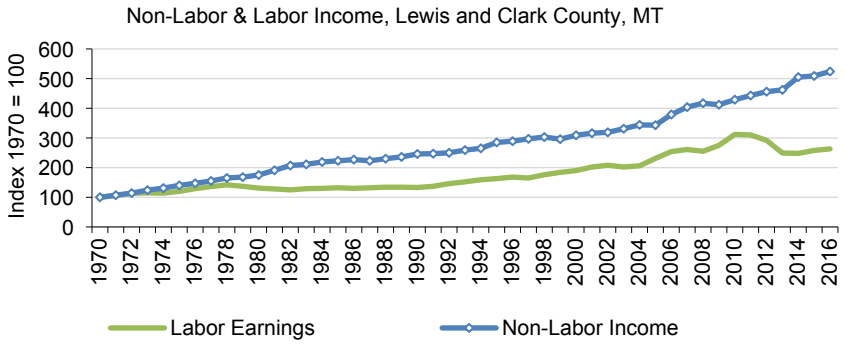
Components of Non-Labor Income, 2016 (Thousands of 2017 $s)

	Lewis and Clark County, MT	U.S.
Total Personal Income	3,072,910	16,246,945,757
Non-Labor Income	1,219,161	5,970,923,535
Dividends, Interest, and Rent	654,692	3,144,457,507
Age-Related Transfer Payments	337,577	1,584,924,889
Hardship-Related Transfer Payments	124,766	892,238,651
Other Transfer Payments	102,126	349,302,487
Labor Earnings	1,853,749	10,276,022,222

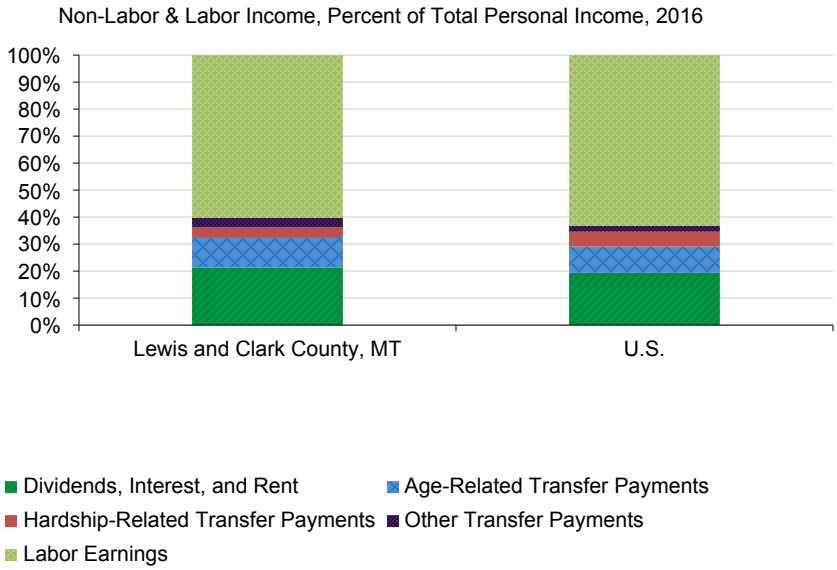
Percent of Total

Non-Labor Income	39.7%	36.8%
Dividends, Interest, and Rent	21.3%	19.4%
Age-Related Transfer Payments	11.0%	9.8%
Hardship-Related Transfer Payments	4.1%	5.5%
Other Transfer Payments	3.3%	2.1%
Labor Earnings	60.3%	63.2%

- From 1970 to 2016, non-labor income in the Lewis and Clark County, MT grew by 424 percent. Over the same period, labor income grew by 163 percent.



- In 2016, Lewis and Clark County, MT had the largest share of total personal income in non-labor income (39.7%), and the U.S. had the smallest (36.8%).
- In 2016, Lewis and Clark County, MT had the largest share of non-labor income in dividends, interest, and rent (21.3%), and the smallest share in other transfer payments (3.3%).



Data Sources: U.S. Department of Commerce. 2017. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C.

How important is non-labor income?

What do we measure on this page?

This page describes components of non-labor income and compares non-labor income to labor earnings. It also shows how non-labor income has changed over time compared to labor earnings.

Non-Labor Income: Dividends, interest, and rent (money earned from investments), and transfer payments (includes government retirement and disability insurance benefits, medical payments such as mainly Medicare and Medicaid, income maintenance benefits, unemployment insurance benefits, etc.) make up non-labor income. Non-labor income is reported by place of residence.

Dividends, Interest, and Rent: This includes personal dividend income, personal interest income, and rental income of persons with capital consumption adjustment that are sometimes referred to as "investment income" or "property income."

Age-Related Transfer Payments: This measures Medicare and retirement and disability insurance benefits.

Hardship-Related Transfer Payments: Payments associated with poverty and welfare, incl. Medicaid and income maintenance.

Other Transfer Payments: All other components of transfer payments not identified in age-related and income maintenance.

Labor Earnings: This represents net earnings by place of residence, which is earnings by place of work (the sum of wage and salary disbursements, supplements to wages and salaries, and proprietors' income) less contributions for government social insurance, plus an adjustment to convert earnings by place of work to a place of residence basis.

Why is this important?

One characteristic of population and income growth influenced by public land amenities is a rapid growth of non-labor income, in particular investment income (dividends, interest and rent) and age-related transfer payments. Because retirees are not tied to a place for work, they are relatively mobile and are often freer to choose where they live. Amenities provided by public lands can help to attract (and retain) retirees. This is particularly important as the baby boom generation (born 1946 to 1964) begins to retire.

Growth in non-labor income by itself is not sufficient evidence that public lands amenities contribute to growth. This indicator should be taken together with all other indicators in this report, along with the recommended additional reading, as resources to help the user understand amenity-driven growth. This work may be supplemented with additional resources, such as surveys of local residents.

Additional Resources

For further details on non-labor income run the EPS Non-Labor Income report.

To read about baby boomers and the attraction of places with amenities and a high quality of life, see: Cromartie, J. and P. Nelson. 2009. "Baby Boomer Migration and Its Impact of Rural America." Economic Research Report (ERR-70), available through the U.S. Department of Agriculture's Economic Research Service: www.ers.usda.gov/publications/err-economic-research-report/err79.aspx *(8)*.

For a discussion and analysis of the aging baby boom and amenity retirement migration, see: Haas, W. H., W. J. Serow. 2002. "The Baby Boom, Amenity Retirement Migration, and Retirement Communities: Will the Golden Age of Retirement Continue?" Research on Aging. 24(1): 150-164.

For a discussion of the relationship between amenities and an aging population, see:
Wright, S.D., M. Caserta and D.E. Lund. 2003. "Older Adults' Attitudes, Concerns, and Support for Environmental Issues in the "New West" The International Journal of Aging and Human Development. 57(2): 151-179.
Nelson, P.B. 1999. "Quality of Life, Nontraditional Income, and Economic Growth: New Development Opportunities for the Rural West." Rural Development Perspectives. 14 (2), 32-37.
Walters, W.H. 2002. "Place Characteristics and Later-Life Migration." Research on Aging. 24(2): 243-277.
Conway, K.S. and A.J. Houtenville. 2003. "Out with the Old, In with the Old: A Closer Look at Younger Versus Older Elderly Migration." Social Science Quarterly. 84(2): 309-328.
Clark, D.E., and W.J. Hunter. 1992. "The Impact of Economic Opportunity, Amenities and Fiscal Factors on Age-Specific Migration Rates." Journal of Regional Science 32(3): 349-65.

Data Sources

U.S. Department of Commerce. 2017. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C.

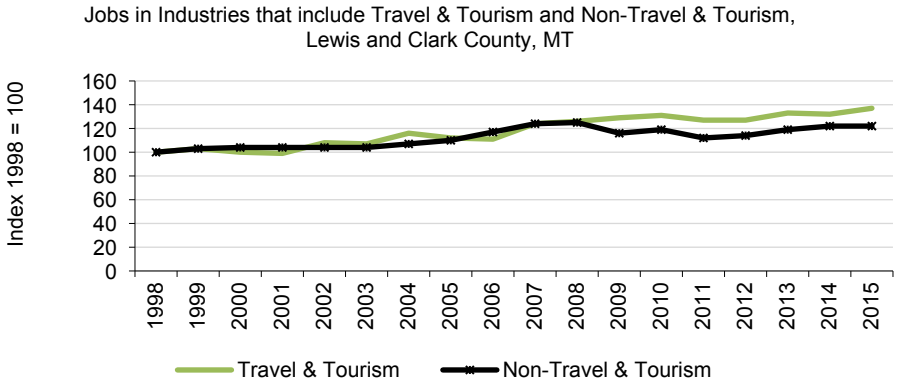
How important are industries associated with travel and tourism?

This page describes the number of jobs and share of total jobs in industries that include travel and tourism. It also shows employment trends in industries that include travel and tourism compared to all other industries.

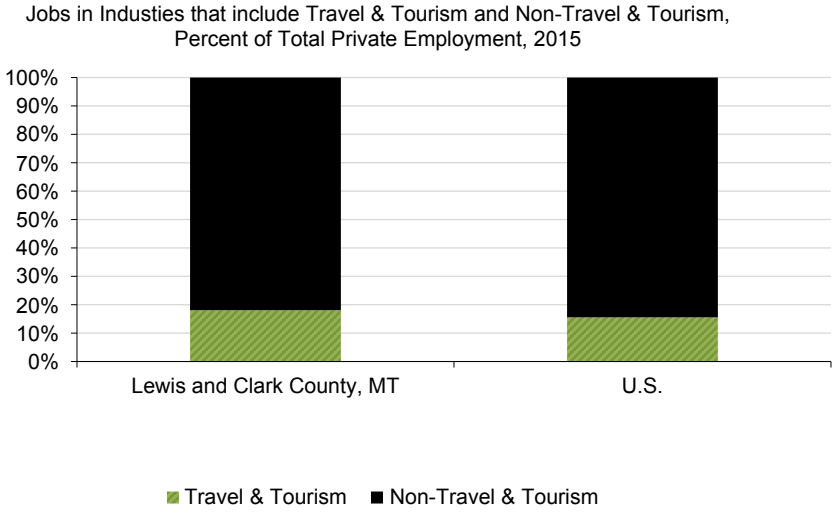
Industries that Include Travel & Tourism Employment, 2015

	Lewis and Clark County, MT	U.S.
Total Private Employment	25,198	124,085,947
Travel & Tourism Related	~4,556	19,298,078
Retail Trade	582	3,390,496
Passenger Transportation	~60	479,868
Arts, Entertainment, & Recreation	~782	2,230,822
Accommodation & Food	3,132	13,196,892
Non-Travel & Tourism	~20,642	104,787,869
Percent of Total		
Travel & Tourism Related	~18.1%	15.6%
Retail Trade	2.3%	2.7%
Passenger Transportation	~0.2%	0.4%
Arts, Entertainment, & Recreation	~3.1%	1.8%
Accommodation & Food	12.4%	10.6%
Non-Travel & Tourism	~81.9%	84.4%

- From 1998 to 2015, industries associated with travel and tourism in the region grew by 37 percent. Over the same period, non-travel and tourism industries grew by 22 percent.



- In 2015, Lewis and Clark County, MT had the largest share of jobs in industries associated with travel and tourism (18.1%), and the U.S. had the smallest (15.6%).



Data Sources: U.S. Department of Commerce. 2017. Census Bureau, County Business Patterns, Washington, D.C.

How important are industries associated with travel and tourism?

What do we measure on this page?

This page describes the number of jobs and share of total jobs in industries that include travel and tourism. It also shows employment trends in industries that include travel and tourism compared to all other industries.

Travel and Tourism: These sectors provide goods and services to visitors, as well as to the local population. It is not known, without additional research such as surveys, what exact proportion of the jobs in these sectors is attributable to expenditures by visitors, including business and pleasure travelers, versus by local residents. Some researchers refer to these sectors as "tourism-sensitive." They could also be called "tourism-potential sectors" since they have potential of being influenced by expenditures by non-locals.

This page is useful for explaining whether sectors associated with travel or tourism are growing or shrinking, and whether there are differences across geographies. It is less useful as a measure of the absolute size of employment in travel and tourism. See methods.

Why is this important?

Public lands can play a role in stimulating local employment by providing opportunities for recreation. Communities adjacent to public lands benefit economically from visitors who spend money in hotels, restaurants, ski resorts, gift shops, and elsewhere. In addition, some migrants to communities with high levels of environmental and recreational amenities visit first as tourists and then return permanently with their families and businesses. Public lands can therefore also stimulate growth in non-tourism sectors via in-migration.

A growth in travel and tourism-related sectors by itself is not sufficient evidence that the amenities of public lands contribute to growth. This indicator should be taken together with all other indicators in this report, along with the recommended additional reading, as resources that help the user understand amenity-driven growth and how to write about it for specific geographies. This work may have to be supplemented with additional resources, such as surveys of local residents and businesses.

Methods

There is no single industrial classification for travel and tourism under the North American Classification System (NAICS). However, there are sectors that, at least in part, provide goods and services to visitors to a local economy. Specific industries that induce travel and tourism include portions of Retail Trade including Gasoline Stations, Clothing & Accessory Stores, and Miscellaneous Store Retailers; portions of Passenger Transportation including Air Transportation, and Scenic & Sightseeing Transportation; portions of Arts, Entertainment, & Recreation including Performing Arts & Spectator Sports, Museums, Parks, & Historical Sites, and Amusement, Gambling, & Recreation; and portions of Accommodation & Food Services including Accommodation, Food Services & Drinking Places.

Data on this page were obtained from County Business Patterns. We use this source because, compared to other sources, it has fewer data gaps*. It also includes both full and part-time employment. The disadvantage of County Business Patterns data is that it does not include employment in government, agriculture, railroads, or the self-employed. As a result, it under-counts the size of industry sectors. Also, County Business Patterns data are based on mid-March employment and do not take into account seasonal fluctuations. For these reasons, the data are most useful for showing long-term trends, displaying differences between geographies, and showing the relationship between sectors over time. The line chart begins in 1998 because that is the year the U.S. Census Bureau (and County Business Patterns) shifted to using the new North American Industrial Classification System (NAICS).

* Some data are withheld by the federal government to avoid the disclosure of potentially confidential information. Headwaters Economics uses data from the U.S. Department of Commerce to estimate these data gaps. These are indicated in *italics* in tables.

Additional Resources

For details on industries that include travel and tourism businesses, run the EPS Travel and Tourism report.

The list of NAICS codes associated with travel and tourism were obtained from: Marcouiller, D. W. and X. Xia. 2008. "Distribution of Income from Tourism-Sensitive Employment." Tourism Economics. 14(3): 545-565: ingentaconnect.com/content *(9)*.

For a discussion about the relationship between recreation opportunities and economic growth, see: Johnson, K. M. and C. L. Beale. 2002. "Nonmetro Recreation Counties: Their identification and rapid growth." Rural America. 17(4): 12-19.

For an example of how tourism can stimulate permanent migration, see: Johnson, J. D. and R. Rasker. 1995. "The Role of Economic and Quality of Life Values in Rural Business Location." Journal of Rural Studies. 11(4): 405-416.

For a review of the importance of quality of life to business location decisions, see: Salvesen, D. and H. Renski. 2003. "The Importance of Quality of Life in the Location Decisions of New Economy Firms." Center for Urban and Regional Studies, University of North Carolina at Chapel Hill, available at: curs.unc.edu/curs-pdf-downloads/recentlyreleased/neweconomyreport.pdf *(10)*.

Data Sources

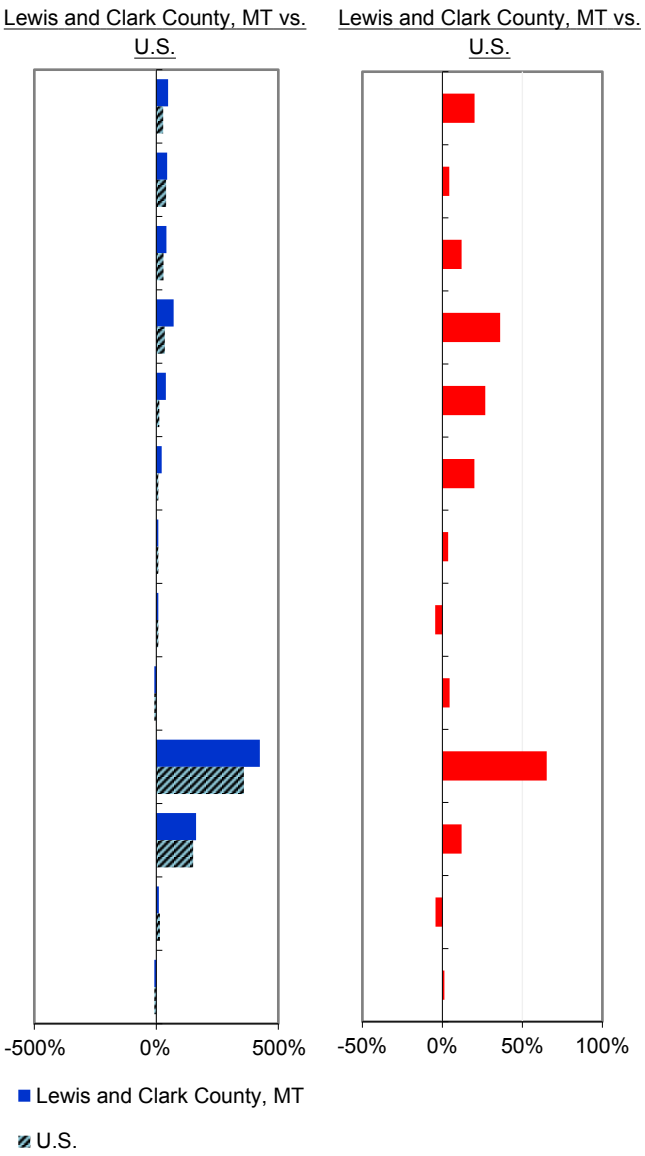
U.S. Department of Commerce. 2017. Census Bureau, County Business Patterns, Washington, D.C.

How do potential amenity indicators in the region compare to the U.S.?

This page compares the various indicators that, when taken as a whole (and when compared to published literature), offer ways of thinking about the economic contribution of public land amenities. The indicators are benchmarked against the U.S.

Summary of Potential Amenity Indicators, Lewis and Clark County, MT Compared to the U.S..

Potential Indicators of Amenity Growth	Lewis and Clark County, MT	U.S.	Difference in Percent: Difference
Federal Public Land (% Total Land Area*)	48.3%	28.2%	20.1%
Protected Federal Public Land (Class A % Fed. Land Area*)	44.4%	40.1%	4.3%
Population (% Change 1990-2016	41.4%	29.4%	12.0%
Migration (% of Population Change 2000-2016	71.0%	34.9%	36.1%
Residential Acres (% Change of Total Land Area 2000-2010	39.1%	12.3%	26.8%
Residential Acres/Person (% Change 2000-2010)	22.0%	2.0%	20.0%
Second Homes (% of Total 2016)	7.6%	4.0%	3.6%
Services (% of Total Non-Government Jobs, Change 2001-2016	1.0%	5.5%	-4.5%
Non-Services (% of Total Non-Government Jobs, Change 2001-2016	-1.0%	-5.5%	4.5%
Non-Labor Income (% Change 1970-2016)	424.3%	359.1%	65.2%
Labor Earnings (% Change 1970-2016)	162.9%	150.9%	12.0%
Travel & Tourism (Jobs % Change 1998-2015)	10.4%	14.7%	-4.3%
Non-Travel & Tourism (Jobs % Change 1998-2015)	-2.0%	-2.3%	0.3%



- The region is most different from the U.S. in non-labor income (% change 1970-2016), (65.2% greater), and is least different in non-travel & tourism (jobs % change 1998-2015), (0.3% greater).

Data Sources: U.S. Department of Commerce. 2017. Census Bureau, American Community Survey Office, Washington, D.C.; U.S. Department of Commerce. 2017. Census Bureau, County Business Patterns, Washington, D.C.; Theobald, DM. 2013. Land use classes for ICLUS/SERGoM v2013. Unpublished report, Colorado State University; U.S. Geological Survey, Gap Analysis Program. 2016. Protected Areas Database of the United States (PADUS) version 1.4; U.S. Department of Commerce. 2017. Census Bureau, Population Division, Washington, D.C.; U.S. Department of Commerce. 2017. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C.

How do potential amenity indicators in the region compare to the U.S.?

What do we measure on this page?

This page compares the various indicators that, when taken as a whole (and when compared to published literature), offer ways of thinking about the economic contribution of public land amenities. The indicators are benchmarked against the U.S.

The term "benchmark" in this report should not be construed as having the same meaning as in the National Forest Mgmt. Act (NFMA).

Why is this important?

Public land amenities are the qualities of public lands that make a region an attractive place to live, recreate, and work. This report offers a number of indicators that, when taken together, and when combined with the recommended additional resources (referenced in the Additional Resources sections throughout this report) can give the analyst information to write about whether -and how- the amenities on public lands contribute to the local and regional economy.

These indicators are presented in one figure on this page to make it easier to view all indicators together. If a geography has a high proportion of public lands, with many of these lands designated as Wilderness, National Park, and National Monument, etc. (Type A), then it is likely that the level of environmental and recreation amenities are high. If a geography also has experienced a high rate of population growth, with much of that coming from in-migration, combined with a conversion of lands for residential development and a high proportion of second homes, then it is likely that amenity-driven growth is taking place. In addition, if the economy of a geography has a high rate of growth in service industry jobs, travel and tourism-related sectors, and non-labor income, then amenities are likely to play a role in economic development.

Another way to see if it is likely that amenities are contributing to economic growth is to compare the selected region to the U.S. If many of the indicators in the region exceed the U.S., then this is additional evidence to consider.

Even when taken as a group, these indicators may not be sufficient evidence that the amenities of public lands contribute to growth. These indicators should be taken together with the recommended additional reading as resources that help the user understand amenity-driven growth and how to write about it for a specific geography. This work may have to be supplemented with additional resources, such as surveys of local residents and businesses.

Additional Resources

For an analysis of the wages people are willing to forego in order to live in proximity to amenities, see: Schmidt, L. and P. N. Courant. 2006. "Sometimes Close is Good Enough: The Value of Nearby Environmental Amenities." Journal of Regional Science. 46(5): 931-951.

For an analysis of the distribution of amenity-driven activity in the Intermountain West, comparing “New West” to “Old West” communities, see: Winkler, R., D. R. Field, A.E. Luloff, R.S. Krannich and T. Williams. 2007. "Social Landscapes of the Inter-Mountain West: A Comparison of 'Old West' and 'New West' Communities." Rural Sociology. 72(3): 478-501.

For a detailed discussion of the history and challenges of economic analysis related to federal public lands. See: Nelson, R. H. 2006. "Valuing Nature: Economic Analysis and Public Land Management, 1975–2000." American Journal of Economics and Sociology. 65(3): 525-557.

For results of a national survey of rural elected officials and their environmental and economic development attitudes, see: Foster, R. H. and M. K. McBeth. 1996. "Urban-Rural Influences in U.S. Environmental and Economic Development Policy." Journal of Rural Studies. 12(4): 387-397. The authors found that “Empirical studies have demonstrated the importance of environmental quality of life factors in the lives of rural residents” and that “[Rural-based officials were more likely to see the importance of environmental quality of life features in the lives of rural residents.”

For a discussion of the relationship between amenities and tourism, see: Marcouiller, D. W., K-K, Kim and S.C. Deller. 2004. "Natural Amenities, Tourism and Income Distribution." Annals of Tourism Research. 31(4): 1031-1050.

Data Sources

U.S. Department of Commerce. 2017. Census Bureau, American Community Survey Office, Washington, D.C.; U.S. Department of Commerce. 2017. Census Bureau, County Business Patterns, Washington, D.C.; Theobald, DM. 2013. Land use classes for ICLUS/SERGoM v2013. Unpublished report, Colorado State University; U.S. Geological Survey, Gap Analysis Program. 2016. Protected Areas Database of the United States (PADUS) version 1.4; U.S. Department of Commerce. 2017. Census Bureau, Population Division, Washington, D.C.; U.S. Department of Commerce. 2017. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C.

Data Sources

The EPS Amenities report uses a set of Geographic Information Systems (GIS) derived national data sources to represent land ownership and residential development. The contact information for these databases is:

- **TIGER/Line County Boundaries 2012**
  Bureau of the Census, U.S. Department of Commerce
  http://www.census.gov/geo/maps-data/data/tiger.html
- **Protected Areas Database v 1.3 2012**
  U.S. Geological Survey, Gap Analysis Program
  http://gapanalysis.usgs.gov/padus/

This EPS report also uses published statistics on population, employment, and personal income from government sources that are available to the public and cover the entire country. The contact information for these databases is:

- **County Business Patterns**
  Census Bureau, U.S. Department of Commerce
  http://www.census.gov/epcd/cbp/view/cbpview.html
  Tel. 301-763-2580
- **Population Estimates**
  Census Bureau, U.S. Department of Commerce
  http://www.census.gov/econ/nonemployer/index.html
  Tel. 301-763-2580
- **Regional Economic Information System**
  Bureau of Economic Analysis, U.S. Department of Commerce
  http://bea.gov/bea/regional/data.htm
  Tel. 202-606-9600
- **Decennial Census**
  Census Bureau, U.S. Department of Commerce
  http:/www.census.gov
  Tel. 303-969-7750

Methods

EPS core approaches

EPS is designed to focus on long-term trends across a range of important measures. Trend analysis provides a more comprehensive view of changes than spot data for select years. We encourage users to focus on major trends rather than absolute numbers.

EPS displays detailed industry-level data to show changes in the composition of the economy over time and the mix of industries at points in time.

EPS employs cross-sectional benchmarking, comparing smaller geographies such as counties to larger regions, states, and the nation, to give a sense of relative performance.

EPS allows users to aggregate data for multiple geographies, such as multi-county regions, to accommodate a flexible range of user-defined areas of interest and to allow for more sophisticated cross-sectional comparisons.

Adjusting dollar figures for inflation

Because a dollar in the past was worth more than a dollar today, data reported in current dollar terms should be adjusted for inflation. The U.S. Department of Commerce reports personal income figures in terms of current dollars. All income data in EPS are adjusted to real (or constant) dollars using the Consumer Price Index. Figures are adjusted to the latest date for which the annual Consumer Price Index is available.

Data gaps and estimation

Some data is withheld by the federal government to avoid the disclosure of potentially confidential information. Headwaters Economics uses supplemental data from the U.S. Department of Commerce to estimate these data gaps. These are indicated in italics in tables. Documentation explaining methods developed by Headwaters Economics for estimating disclosure gaps is available at headwaterseconomics.org/eps.

Links to Additional Resources

For more information about EPS see:

headwaterseconomics.org/EPS

Web pages listed under Additional Resources include:

Throughout this report, references to on-line resources are indicated with italicized numbers in parentheses. These resources are provided as hyperlinks here.

1 www.ers.usda.gov/publications/aer-agricultural-economic-report/aer781.aspx
2 www.census.gov/cgi-bin/geo/shapefiles/national-files
3 www.consbio.org/what-we-do/protected-areas-database-pad-version-4
4 headwaterseconomics.org/land/reports/protected-lands-value
5 www.census.gov/popest/about/terms.html
6 www.census.gov/popest/methodology/index.html
7 www.pnas.org/content/107/2/940
8 www.ers.usda.gov/publications/err-economic-research-report/err79.aspx
9 www.ingentaconnect.com/content
10 www.curs.unc.edu/curs-pdf-downloads/recentlyreleased/neweconomyreport.pdf