

PEER-REVIEWED

THE ECONOMIC IMPACT OF ROCK CLIMBING IN BISHOP, CALIFORNIA

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Abstract

This study examined the economic impact of rock climbing in Bishop, California. Bishop is a popular climbing and bouldering destination located in Inyo County. The authors estimated Bishop receives 88,890 climbing-related visits annually alongside \$15.6 million in climbing community expenditures. However, the authors estimate that visitation was reduced by 65% from 2019 to 2020 due to pandemic travel closures and reluctance to travel. This equates to roughly \$10 million dollars in lost expenditures.



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Outdoor recreation represents a valuable form of economic activity across the United States (OIA 2017). Rock climbing’s economic impact has demonstrated particularly valuable in rural transitional economies (Maples et al., 2017; Maples et al., 2019). However, these studies have mainly focused on the Eastern half of the nation, leaving gaps in climbing literature.

The purpose of this study is to examine the economic impact of rock climbing in Bishop, California, establish climber visitation estimates there, and consider how COVID-19 may have impacted climber spending patterns. The authors utilized a 2019-20 field survey of Bishop climbers to collect data on climber expenditures and use patterns and a 2019-20 car count to model out annual visitation patterns. Using IMPLAN to analyze the data using Inyo County as a study area, results indicate climbers spend an estimated \$15.6 million annually in Bishop and the surrounding area based on 88,890 climbing visits per year. COVID-19 restrictions and concerns over travel likely reduced expenditures by an estimated \$10 million in 2020, however.

Outdoor recreation is an important part of the United States economy, creating \$887 billion in expenditures in 2017 (OIA, 2017). In 2019, outdoor recreation supported an estimated 578,480 jobs in California, roughly 2.4% of the jobs in the state (USBEA, 2019). Climbing is a fast-growing economic sector in outdoor recreation (Maples et al., 2019; Maples et al., 2017). Nationwide, climbing contributes \$12.45 billion to the American economy (AAC, 2017). Climbing also represents a form of sustainable tourism for rural and transitional economies (Maples, 2021). However, these studies have largely focused on Eastern states, leaving a need for more research on West Coast destinations and particularly in California.

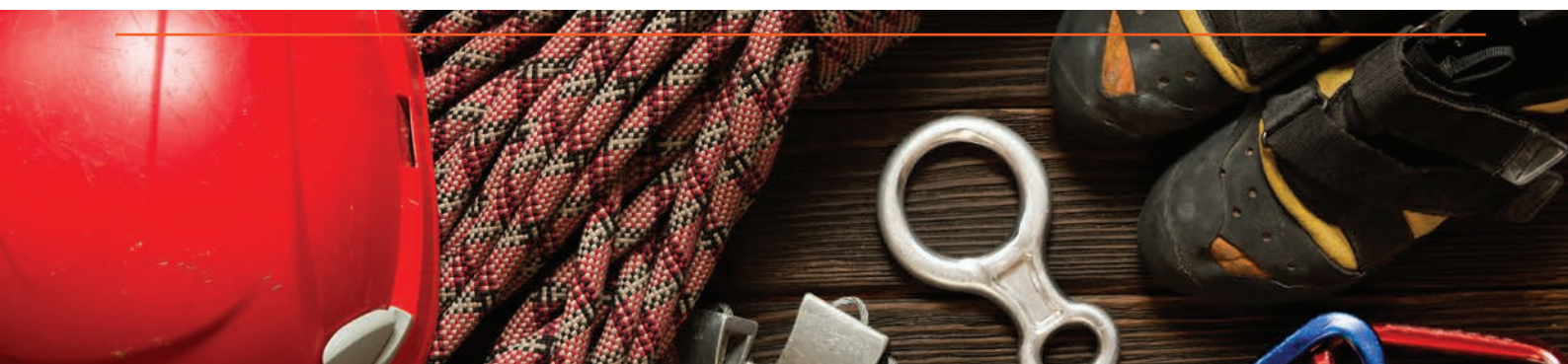
In 2019, California ranked first among all states in Outdoor Recreation Satellite Account (ORSA) value added, and 25th among all states in value added growth (USBEA, 2019). Since 2018, ORSA value added has grown alongside the rest of the US at 3.7%. Much of this value (52%) derives from ORSA supporting activities, which include construction, travel and tourism, local trips, and government expenditures, that contribute to core/conventional activities such as camping, hiking, boating, and hunting (listed at 27% for value-added composition). Further, a total of 578,480 jobs are supported by such economic activities (USBEA, 2019).

Inyo County, where Bishop is located, is a largely rural area along the Nevada-California border. Although it is the second largest California county, around half of that land is part of Death Valley National Park. In 2019, Inyo County had 17,333 residents, roughly half of which were in still in the labor force (8,593) per the Census Bureau’s American Community Survey 2019 results (Census Bureau, 2019). The largest industries in Inyo County are education and health care (1,975) and recreation and accommodations (1,190). The latter includes campgrounds and motel workers as well as parks and recreation jobs that support outdoor recreationists visiting the region.

Bishop is located in the northern end of Inyo County along the Sierra Nevada mountains. The region is home to the Paiute and Shoshone people and is well-known for its climbing. Located in the region natively known as Payahuunadü, mining and ranching interests developed Bishop on Indigenous lands in the 19th century (Bishop Paiute Tribe, n.d.). Today, Bishop is the largest populated place (3,875 as of 2020) in Inyo County and is also its only incorporated city (Census Bureau, 2019). Over the last two decades, Bishop gained fame as a climbing and bouldering des-

Table 1: Economic Expenditures for Bishop Climbing Area Visitors Between November 1, 2019 and March 15, 2020

Variable	Count	Expenditures inside Inyo County/Bishop				Expenditures Beyond Inyo County but within CA		IMPLAN Category
		Min (\$)	Max (\$)	Mean (\$)	SD (\$)	Mean (\$)	SD (\$)	
Hotel	41	7.50	210.00	83.54	58.40	-0.00	-	507
Camping	44	2.50	70.00	20.88	14.92	1.38	5.83	508
Cabin/Rental	7	3.00	166.00	71.61	55.17	-0.00	-	508
Gas	184	0.00	160.00	52.28	37.53	37.17	75.70	408
Fast Food	184	0.00	50.00	6.82	13.03	1.74	5.34	510
Dine-In	179	0.00	133.00	35.21	31.81	6.76	19.99	509
Convenience Food	182	0.00	30.00	5.26	7.51	2.09	5.40	408
Groceries	179	0.00	150.00	34.92	35.90	12.05	36.56	406
Retail	185	0.00	50.00	4.66	11.59	-0.00	-	411
Rec Retail	184	0.00	120.00	16.71	29.54	1.16	7.80	410



tination featuring massive quartz boulders in an area known as the Buttermilks and sport climbing in the Owens River Gorge. Bishop's relative proximity to San Francisco and Los Angeles offered an ideal regional climbing hub while nearby airports encouraged climbers to visit from around the globe.

Research on climbing indicates it is a thriving part of the outdoor recreation economy. In recent years, researchers have examined the economic impact of climbing in Tennessee, Nevada, West Virginia, and Kentucky to name a few (Bailey & Hungenberg, 2020; Christensen, 2016; Maples et al., 2019; Maples et al., 2017;). These studies consistently find climbing communities generate millions in expenditures from their visits to climbing areas. Recent work also posits climbing presents a form of sustainable rural tourism that can be a centerpiece for rejuvenating transitional economies (Maples, 2021). However, one ongoing issue among these studies is a minimal examination of Western states, particularly in California, which holds many established climbing areas.

Methods

Economic impact study areas are built around the location where the activity being studied (climbing) occurs and the cities and towns where visitors are most apt to spend funds as part of their trip. For this analysis, Inyo County, California is being used as the study area. This study area was constructed by locating and examining economic activities and services available in the region, major roadways, and visitor destination locations based around the event being studied.

Researchers collected data via in-person surveys of climbers visiting Bishop from November 1, 2019 through March 15, 2020. As economic impact studies focus on persons visiting the region, data were only collected from persons living outside of Inyo County (White, 2017). In all, 216 persons responded to the survey. The survey included a series of expenditure questions designed to understand visitor purchases while climbing in Bishop and the surrounding 35 mile area (Maples et al., 2019). Questions examined expenditures in lodging (hotel/motel, camping, and cabin/home rentals), food

(fast-food restaurants, dine-in restaurants, convenience store food, grocery stores), gasoline purchases, and retail purchases (general retail and recreation retail). The survey asked respondents to note estimated expenditures (in dollars) first within a 35 mile radius of Bishop (which is represented by using Inyo County as the study area) and again outside of Inyo County but within California during their current trip. Note that the surrounding area of 35 miles was included to cover travel throughout Bishop as well as stops at campgrounds, restaurants, gas stations, and the nearby airport. However, the researchers argue expenditures are decidedly focused on Bishop as spending options beyond Bishop are very limited.

The researchers estimated visitation using parking lot counts from 2019 and 2020 during the height of the climbing season to create an estimate of visitation in 2019. This included all parking options for Bishop: the Buttermilks, Happies, Sads, and three lots at the Owens River Gorge. These lots are almost universally used by climbers. Car counts for an entire year were not fiscally possible so the researchers focused on select observations of the heaviest visitation period (roughly mid-November through mid-April) as little climbing occurs the rest of the year. Lot counts were provided by the Bishop Area Climbers Coalition. As cars may come and go during the day, the researchers assessed what percent of the parking lot was full each day based on the available number of spaces. These percentages were extrapolated to similar days: for example, February weekdays could be based on two observations indicating 30% of the parking lots were full during the week. Using this process, the researchers built an entire year's visitation patterns. These patterns were later fact-checked in climber focus groups to reduce risk of estimation error.

Using this approach, the researchers estimate approximately 49,433 cars are parked in climbing parking lots during a typical year. Researchers estimate 1.8 climbers per car, based on survey responses and group observations, which leads to an estimated 88,890 climber visitors per year to Bishop. Based on interviews with Bishop/Inyo County residents who climb, the researchers estimated 7.5 percent of these visits are from persons living in-

Table 2: Economic Impact Summary

Impact Type	Employment	Labor Income (\$)	Value Added (\$)	Output (\$)
Direct	107.7	4,278,402.00	6,169,534.00	9,703,997.00
Indirect	9.0	399,194.00	608,960.00	1,262,783.00
Induced	10.8	456,561.00	1,088,027.00	1,755,737.00
Total Effect	127.5	5,134,156.00	7,866,521.00	12,722,517.00

ers per car, based on survey responses and group observations, which leads to an estimated 88,890 climber visitors per year to Bishop. Based on interviews with Bishop/Inyo County residents who climb, the researchers estimated 7.5 percent of these visits are from persons living inside Bishop or the Inyo County study area. This results in an estimated 82,223 climber visits by persons living outside of the study area. Given survey lodging data, the researchers also estimate 90% of visitors (74,000 visitors) stay at least one night because of their visit. Based on survey responses, the researchers attribute 45% of these to camping use, 45% to hotel/motel use, and 10% to cabin or rental homes (N=216).

Table 1 notes mean climbing expenditures in this study area. Climbers choosing to stay in hotels spent an average of \$83 per person in lodging, while those camping spent an average of \$21. Climbers using rental cabins typically spend around \$71. On average, climbers visiting Bishop spent \$52 inside Inyo County on gasoline during their visit. Climbers are also frequent visitors to local restaurants as well as getting a quick bite at local gas stations, spending nearly \$7 per trip on fast food, \$35 at dine-in restaurants, around \$5 per trip on quick food from gas stations, and almost \$35 per trip on groceries at local grocery and farmer markets. Table 1 also includes expenditures beyond Inyo County but within California. There, most expenditures were minimal, save gasoline.

Table 1 also includes IMPLAN categories used for modeling these activities. IMPLAN (IMPacts

for PLANning) is a leading economic impact estimator that utilizes inputs (such as a climber buying pizza) to estimate outputs (how money from that pizza purchase supports local wages). In IMPLAN analyses, the researchers assign spending values to specific sector categories (see Table 1). These patterns are then analyzed in IMPLAN using their proprietary dataset and historical knowledge of economic patterns, as well as any visitation patterns included by the researchers. The result is a measure of how spending supports local wages and so forth.

Results

Economic Impact. Table 2 summarizes the economic impact analysis of climbing in Bishop using Inyo County as a study area. There, the researchers estimated climbers spend \$15.6 million annually in a typical year. This estimate comes from \$4 million in lodging and \$11.5 million in food/gas/retail expenditures during a typical climbing season plus \$102,675 in festival expenditures from two annual festivals (the Highball and the Women’s Climbing Festival) which were examined in a separate study. Table 2 highlights what occurs when these funds were spent inside the study area. Focusing on labor income (the most conservative measure of economic impact of the three listed), climbing generates an estimated \$5.1 million in labor income inside Bishop and Inyo County. Table 3 further highlights how these expenditures impact taxation in the study area. Climber expenditures produce taxes at the local, state, and

Table 3: Annual Estimated Taxation Generated

Tax Type	State/Local Amount (\$)	Federal Amount (\$)
Employee Compensation	\$19,738.00	\$436,893.00
Proprietor Income	\$0.00	\$61,839.00
Tax on Production and Imports	\$809,573.00	\$156,944.00
Households	\$210,511.00	\$418,227.00
Corporations	\$18,660.00	\$32,675.00

federal levels. In all, climbers' estimated expenditures supported \$1,058,482 in local/state taxes and \$1,106,578 in federal taxes.

Climbing expenditures also support jobs in the study area. Note IMPLAN reports jobs related to economic expenditures in portions of jobs rather than whole jobs. The idea is few jobs would be entirely dedicated to climbers as clientele. Likewise, jobs estimated can include a mix of part and full-time jobs, as well as proprietors. With these explanations in mind, the researchers estimated climbing expenditures support around 127 jobs in the study area. Table Four notes what kinds of jobs are supported by climbers' expenditures in the study area. These include jobs in full-service restaurant jobs (including wait staff and kitchen work), hotels and motels (such as cleaning, desk staff, and attendants), other accommodations (including campgrounds and rental cabins/houses), grocery stores, fast-food restaurants, gas stations, and sporting goods stores.

Impacts of COVID-19. In 2020, public lands inside Bishop's climbing community closed from March 16 through June 15 due to the pandemic. Much of this closure occurred as Bishop's climbing season ended. Returning to the parking and visitor estimates used earlier in this study, the research team argues this closure resulted in approximately 23,700 fewer visits, or around a quarter of annual visitation. As recreation areas across the nation reopened over the 2020 summer months, climbers remained

hesitant to return after the closures. Compared to the previous year's data, 2020 data indicated visitation was reduced approximately 40% for the remainder of the year. This accounted for a reduction of an estimated 33,300 visits from mid-June through the end of the year. When totaled, the researchers estimate the pandemic resulted in a reduction of approximately 57,000 visits. This decreased visitation by nearly 65% to approximately 32,000 visitors. This change in visitation negatively impacts typical climber expenditures. Based on these pandemic visitation patterns, climbers spent an estimated \$2.6 million less in lodging and \$7.4 million less in daily expenses like gas and restaurant visits. As a result, Bishop and indirectly Inyo County likely lost over \$10 million in potential climber expenditures in 2020 because of the pandemic.

Conclusions

The findings of this study add new evidence to the claim that rock climbing is a valuable form of economic impact in outdoor recreation. What is perhaps most notable in this study is the effect of closures in reducing economic expenditures. As a result of the pandemic, the early closure, climbers' overall hesitance to travel, and the cancellation of one of the two festivals, the typical expenditures by climbers precipitously dropped. This links to the ongoing concerns about unexpected closures in climbing areas. Due to potential state

Table 4: Labor Income Generated

Employment Sector Type	Jobs Supported	Labor Income in Sector (\$)
Full-service restaurants	41.4	\$1,253,735.00
Hotels and motels	26.0	\$1,047,505.00
Other accommodations	16.8	\$734,195.00
Retail-food and beverage stores	11.2	\$492,819.00

the ongoing concerns about unexpected closures in climbing areas. Due to potential state policies, public climbing areas can be closed on short notice, leading to reduced climbing opportunities. However, this conversation may be lost in the long-term economic consequences for the areas where these climbing expenditures ceased. This study provides an early example of how the pandemic impacted outdoor recreation areas while also quantifying the negative effects of reducing outdoor recreation-related tourism.

Climber expenditures in this study also indicate climbers are finding the services they desire locally. In every case, expenditures were larger inside the county, which indicates climbers are finding the services they need locally. For example, grocery expenditures were almost a third of what was spent in Inyo County. Likewise, lodging and retail expenditures were minimal, and in some cases effectively zero. This data indicates climbers overall do not feel a need to stop in towns or cities before Bishop to stock up for their trip. Instead, they are keeping their purchases local to Bishop, which means that climbers are likely interested in spending money in their climbing areas. This trend supports conducting further studies of climbing areas on the West Coast to support providing an aggregate national picture of climber expenditures across the nation.

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