

INVESTING IN BICYCLE INFRASTRUCTURE TO SPUR STATEWIDE ECONOMIC GROWTH THROUGH BICYCLE TOURISM

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CHAPTER 1: INTRODUCTION

RESEARCH OVERVIEW

Bicycle tourism is a growing industry that has been shown by prior studies to contribute significantly to the economy of numerous states.¹ The economic benefits of recreational bicycling are not limited to the direct effects of the transactions of bicyclists in related industries, but also spillover effects such as the reduction of automobile activity and its associated costs to society, or the decrease of the costs of obesity and inactivity to the healthcare system. This study focuses on the former and aims to provide a qualitative and quantitative analysis of the economic impacts derived from recreational bicycling expenditure, as well as an assessment of the implications of bicycling events and activity for Nebraskan communities, local and state governments.

This research will:

1. Identify recreational bicycling events and quantify unorganized bicycling activity in Nebraska.
2. Estimate the direct, indirect and induced economic impacts of bicycle tourism and recreational bicycling in Nebraska.
3. Discuss specific ways in which the State's bicycle infrastructure can promote or inhibit the development of bicycle tourism and recreational activity.

The study consists of two main components:

1. A compilation of six case studies of bicycle tourism events that currently take place in Nebraska. For each case study, data about participation and user expenditure was gathered and used to estimate the economic impact at the county-level, and to assess the event's implications.
2. An estimation of the overall recreational bicycling activity and its economic impact in the State of Nebraska, considering both bicycle tourism and unorganized activity. This estimation relies on data from the case studies and prior research to determine the expenditure of bicyclists in the State, and uses IMPLAN to calculate direct, indirect and induced economic impacts.

The case studies contain an in-depth analysis of the different types of touristic events and how they affect their localities, while the second component aims to approximate the size of the recreational bicycling industry in Nebraska. Altogether, both components provide an ample overview of the nature and scope of recreational bicycling activity in Nebraska that can inform government officials and policy-makers' decision process in regards to operations that affect the future of the State's bicycle tourism industry.

¹ Research available at: <https://peopleforbikes.org/our-work/statistics/statistics-category/?cat=economic-statistics>

SCALE AND SCOPE OF THE STUDY

A literature review of similar studies on different states was conducted prior to the identification of bicycle tourism events in Nebraska. These prior studies presented different methodologies and estimates for bicycling activity, expenditures and economic impacts in the states of Colorado, Wisconsin and Iowa.²

While this research covered 46 individual bicycle tourism events in Nebraska, the six case studies that are included in Chapter 2 were chosen as they represent the wide variety of bicycle races that the State's has to offer in terms of:

1. Location: Urban versus rural, with single or multiple locations and routes.
2. Size: Events ranging from a dozen to several hundred participants.
3. Type of race: Road races versus off-road events such as gravel grinders.
4. Target market: Competitive races, casual recreational rides, or family-oriented events.
5. Frequency: Covering from weekly casual rides to annual competitions.

For the case studies, interviews with the event organizers provided an estimate of the number of participants that register, the length and nature of their stay, their spending behaviors, and their distribution either as local or visitors. The published event details available on each event's website served to determine the price of registration, as well as the recommended accommodations that are typically used by participants. The individual websites of hotels, campsites and RV parks provided the price of accommodation for some events. Strava data on the number of bicycle users was used to estimate the total number of participants per day in certain weekly events. IMPLAN's 2018 database of buy-sell relationship factors by sector for each county was the basis for the calculation of indirect and induced impacts.

For the overall analysis of Nebraska recreational bicycling and IMPLAN analysis, event websites and interviews with event organizers provided the number of attendants, and the length and frequency of the events that were used to estimate bicycle tourism activity in Nebraska. Nebraska Tourism Commission's data on attraction attendance was used to quantify the total number of visitors per year. Data from prior studies, interviews, and average market prices were used to calculate the expenditure of recreational bicyclists in different industries.

The methodology used both in the case studies and overall economic impact analysis was the following:

1. Estimate bicycling activity, either total or by type of user. For the case studies, we measured activity in terms of participants, while in the State analysis, we measured it in annual cycling days.
2. Approximate the expenditure of each type of user by industry sector.
3. Calculate the total expenditure by industry sector using activity values and expenditure values.
4. Use total expenditure by sector values as inputs in IMPLAN to estimate direct, indirect and induced impacts.

² Economic impacts reported in studies available from: <https://peopleforbikes.org/our-work/statistics/statistics-category/?cat=economic-statistics>

The economic impacts of the events included in the case studies as well as for the State of Nebraska as a whole are categorized in three main types: direct, indirect, and induced. Direct effects: The result of money being spent in the industries that sell products or services to people that engage in recreational bicycling. Indirect effects: The result of business-to-business transactions that are triggered by the initial expenditures that caused the direct effect. For example, restaurants where bicycle riders eat purchasing more supplies and inventory from other industries. Induced effects: The results of increased income caused by the previous effects. For example, those same restaurants where bicycle riders eat hiring more employees over time to satisfy the increased demand.

Findings from the case studies and state-level analysis in turn are used to illustrate the impacts of bicycle tourism for the state of Nebraska, as well as policy and operational guidelines for the Nebraska Department of Transportation to support and foster further bicycle-related economic impacts. Such impacts benefit the state as a whole, but are particularly important for supporting local businesses and economies in rural communities and small towns across Nebraska.

CHAPTER 2: CASE STUDIES

INTRODUCTION

Chapter 2 contains a sample of six case studies of recreational bicycling events in the State of Nebraska, selected among 46 individual races that were analyzed overall. The events that were selected for the cases are representative of a wide variety of sizes, locations and types of bicycle races that take place in the State. The purpose of this chapter is to provide a detailed assessment of the nature, development, economic impact, challenges and implications of the different events that drive the bicycle tourism economy. The cases cover the following events:

1. Robidoux Quick & Dirty.
2. Kool-Aid Classic Bicycle Tour.
3. Nacho Ride.
4. Saturday morning No Drop Fat Bike Ride (SMNDFBR).
5. Gravel Worlds.
6. Nebraska United Methodist Bike Ride for Hunger (NUMB).

The first two events take place in western and central Nebraska respectively, they are large events in the 200 to 500 participant range. However, their nature differs significantly: the Robidoux Quick & Dirty is an off-road event, more competitive event; while the Kool-Aid Classic Bicycle Tour is a family-oriented bike ride. The following three events are located in southeastern Nebraska. The first two are casual weekly bicycle rides of different sizes. The Nacho Ride is a large event with a set route and the SMNDFBR is a smaller ride that switches its destination on a weekly basis, impacting different counties. Gravel Worlds is a large gravel grinder, a competitive event in the outskirts of Lincoln, Nebraska. The last case study covers NUMB, a fairly large non-profit event that alternates its location and routes every year.

Each of the following case studies is divided in three sections:

- **Event Overview.** A general description of the event, its history, courses and the demographics of the participants.
- **Impacts.** A description of the data and calculations involved in determining the direct, indirect and induced economic impacts of the event. This section presents the quantifiable economic impact of each event.
- **Implications.** A discussion on the challenges faced by event organizers, the potential for growth or replication of the event in other parts of the state, and the implications that the event has for local and state authorities.

CASE STUDY 1: ROBIDOUX QUICK & DIRTY

Event Overview

The Robidoux Quick and Dirty (RQD) is a gravel bicycle race that takes place in the Wildcat Hills, near the city of Gering, Scotts Bluff County. It is a one-day event and is typically scheduled for the penultimate Saturday of June. The race was created in 2016 by the Western Nebraska Bicycle Club as a way to highlight the local natural and historical qualities, which include sandstone bluff systems that make for great gravel-cycling terrain, abundant flora and fauna, and scenic parts of the Oregon Trail.

Gering is a city of less than 8,500 people that has experienced population decline over the last 10 years,³ similarly to other small towns in rural Nebraska. The only major annual event in Gering, besides the RQD, is the Oregon Trail Days celebration (an annual, multi-day cultural event including parades, tournaments, and a bicycle race)⁴. RQD shares a deep connection to the historic fur trade and migration route; the race being named after Antoine Robidoux, a fur trapper that set an aid station for travelers that had to undertake the difficult passage through the sandstone cliffs of the Wildcat Hills.

The courses display the challenging journey of the pioneers, with wagon wheels and graves reminding participants of those that did not make it to their final destination in the West. RQD currently offers three courses of varying lengths: 25 miles, 65 miles and 100 miles. Each course targets riders with different levels of gravel-racing experience, and presents a different price tag ranging from \$30 to \$75. The courses are characterized by overall elevation gains as high as 5,500 feet through surfaces that are almost entirely gravel.⁵ All the event routes take place on gravel roads, ending in the Mitchell Pass on the Old Oregon Trail (Old Highway 92).

The RQD is tourist-oriented event that draws significant attention to Gering, Nebraska. In spite of having started in 2016, and being cancelled in 2017 and 2018 due to Western Nebraska's inclement weather, the event has gained popularity within the gravel-racing community regionally. Most of these participants are male high earners between the ages of 35 and 55, but as the popularity of gravel-racing grows, participants are becoming increasingly diverse⁶. A majority of RQD's participants come from out-of-state, especially from neighboring Colorado. Among the participants that are Nebraskan, most are not from Scotts Bluff County.

The COVID-19 pandemic has resulted in the cancellation or postponement of many bicycling events. RBQ 2020 was originally scheduled for June 20 and attendance was capped at 400 participants. In light of the pandemic, organizers decided to reschedule the event to September 20 and to increase the cap to

³ "ACS Demographic and Housing Estimates." American Community Survey. United States Census Bureau. Accessed May 19, 2020. <https://data.census.gov/cedsci>.

⁴ Oregon Trail Days. Oregon Trail Days Committee. Accessed June 3, 2020. <http://www.oregontraildays.com>.

⁵ Robidoux Quick & Dirty. Accessed May 19, 2020. <https://www.robidouxquickndirty.com>.

⁶ Fredricksen, Clark. "Road is Losing. Gravel is Winning. Here are the Numbers." Essays. To Be Determined. https://owl.purdue.edu/owl/research_and_citation/chicago_manual_17th_edition/cmos_formatting_and_style_guide/periodicals.html.

500 participants, expecting a significant number of riders regionally looking for alternatives to other suspended events.

Impacts

Aside from the revenue reported by the event organizers, RQD has a significant direct economic impact on Gering’s entire hospitality industry. Additionally, gas stations and convenience stores in Gering and the routes leading into town experience a surge in visiting customers. These industries, in turn, rely on a supply chain to provide their products and services, extending the effects of RQD to other industries in Gering, Scotts Bluff County, and the state of Nebraska. While not immediately quantifiable in dollars, events such as RBQ also benefit the locality by promoting the Wild Cat Hills as a tourist destination, and bicycling as a viable, family-friendly form of tourism.

Calculating Economic Impacts

Different sources were used for the estimation of economic impacts:

- (1) Interviews with the organizer provided a rough estimate of the number of participants that register for each course, the length and nature of their stay, their spending behaviors, and their distribution either as local or visitors.
- (2) The published RQD event details served to determine the price of registration, as well as the recommended accommodations that are typically used by participants.
- (3) The individual websites of hotels, campsites and RV parks provided the average price of each type of accommodation for the day of the event.
- (4) IMPLAN’s 2018 database of buy-sell relationship factors by sector in Scotts Bluff County is the basis for the calculation of indirect and induced impacts.

We calculated the direct economic impact of RQD by estimating total expenditures by event participants, divided into four categories: (A) registration fees, (B) lodging, (C) meals, (D) fuel and groceries. The direct economic impact of souvenirs and merchandise sales by the event organizers were not considered in our calculations due to a lack of available data. We then calculated indirect and induced impacts of RQD for all of Scotts Bluff County using IMPLAN, with the aforementioned direct impacts (i.e., total expenditures from each category) as an output to estimate indirect and induced impact for corresponding industry sectors.

(A) Historically, approximately 8% of participants enroll in the 25-mile course, 40% in the 65-mile course and 52% in the 100-mile course. The courses have a price of \$30, \$60, and \$75 per participant, respectively. Thus, in 2020, the event would earn \$32,700 from registration fees alone (see Table 2.1.1).

<i>Course</i>	<i>Price</i>	<i>Percentage of Participants</i>	<i>Participants</i>	<i>Revenue</i>
<i>25-mile</i>	\$30	8%	40	\$1,200
<i>65-mile</i>	\$60	40%	200	\$12,000
<i>100-mile</i>	\$75	52%	260	\$19,500
Total		100%	500	\$32,700

(B) To estimate the event’s direct impact on the lodging industry, event participants were divided as either locals or visitors, as the latter have to pay for lodging while they are in Gering for the event. A total of 500 riders are expected to attend the event in 2020, with about 85% of attendees expected to come from out-of-state. Of the approximately 15% of participants from Nebraska, most are not from Scotts Bluff County. Thus, we estimate that 95% of participants are non-local and will require lodging. Out-of-state visitors and non-local Nebraskans can choose to stay in hotels, or to camp in recreational vehicles or tents. Most participants stay in a hotel (approximately 90%), while roughly half of the remaining participants camp in tents and the rest in recreational vehicles. Out of these visitors, the event organizers estimate that 90% stay for one night and 10% for two nights (see Table 2.1.2). The expenditure in accommodation was estimated for each type of lodging as the average of the hotels, campsites and RV parks that are recommended by the event’s organizers (see Table 2.1.3). Based on these assumptions and estimates, the total revenue generated by the lodging industry due to RBQ was calculated at \$63,074 (see Table 2.1.4).

<i>Length of Stay</i>	<i>Percentage</i>	<i>Visitors</i>
<i>1 day</i>	90%	427.5
<i>2 days</i>	10%	47.5
Total	100%	475

<i>Lodging Type</i>	<i>Average Price/Night</i>	<i>Percentage of Participants</i>	<i>Participants</i>
<i>Campsite</i>	\$12	5%	23.75
<i>RV park</i>	\$30	5%	23.75
<i>Hotel</i>	\$131.82	90%	427.5
Total		100%	475

<i>Lodging Type</i>	<i>Campsites</i>	<i>RV parks</i>	<i>Hotels</i>	<i>All Types</i>
<i>Subtotal</i>	\$314	\$771	\$61,990	\$63,074

(C) Participants’ expenditure in restaurants, coffee shops and other food and drink-related venues was calculated by assuming that each participant spends \$15 per meal, three times a day. Dividing the participants by the length of their stay and multiplying these numbers results in a total of \$24,750 in restaurant industry revenue (see Table 2.1.5).

(D) Convenience expenses were calculated in a similar manner, by assuming that each participant spends an average of \$50 in gasoline stores, totaling \$25,000.

<i>Length of Stay</i>	<i>Expenditure</i>	<i>Participants</i>	<i>Revenue</i>
<i>1 day</i>	\$45	450	\$20,250
<i>2 days</i>	\$90	50	\$4,500
Total		500	\$24,750

Results

Findings indicate total economic impacts (i.e., direct, indirect, and induced) from the RDQ 2020 would be \$191,521 for Scotts Bluff County. An IMPLAN analysis of these revenues by industry sector results in the calculation of the following economic impacts of RQD:

- A direct impact of \$126,115, a labor income of \$37,929 and a direct value added of \$59,703.
- An indirect impact of \$38,225, benefiting mostly the real estate and food industries.
- An induced impact of \$27,181, benefiting mostly the industries of owner-occupied dwellings, and hospitals.
- A federal tax revenue of \$12,015.
- A state and local government tax revenue of \$14,512.

Implications

RQD has experienced exponential growth, starting with 70 participants in its first edition in 2015 to over 400 in the upcoming race in 2020. Capitalizing on the current booming trend in the gravel racing market, the event organizers plan for further growth and expect the event to reach between 800 and 1,000 participants by 2021. For the community of Gering, an event this size that continues to grow means increasing economic benefits as well as increased awareness of the locality as a potential destination for visitors to return. However, not all the implications of RQD are positive, and the event might pose a substantial cost for local authorities.

At the state level, events such as RQD could offer a lifeline to smaller communities in rural areas that are otherwise struggling with population decline and limited economic opportunities. Gravel events offer an opportunity for these communities (and regions) to capitalize on their natural landscape and existing gravel road infrastructure. Currently, most gravel races in Nebraska are concentrated in the Southeast, RQD being the exception. x

Despite its primarily off-road nature, RQD and many other gravel races have segments of their courses that take place on paved local roads and state highways. Hence, road maintenance and the existence of appropriate shoulders are key aspects to a safe and enjoyable bicycling experience. Moreover, the general condition of highways in the State affects the perception of Nebraska as a bicyclist-friendly destination.⁷ An adequate system of roads, highways, and trails that implements bicycling as both a recreational activity and as a valid means to commute would support the development of more events like RQD. The growing popularity of gravel racing nationally provides a unique opportunity for Nebraska to attract bicycling enthusiasts with only modest investments in road maintenance and consequently, promote overall tourism into the state's most neglected regions.

⁷ Aaron Raines (Robidoux Quick & Dirty organizer) in discussion with the author, March and May 2020.

CASE STUDY 2: KOOL-AID CLASSIC BICYCLE TOUR

Event Overview

The Kool-Aid Classic Bicycle Tour is a race that takes place in the city of Hastings, Adams County, Nebraska. Hastings is known for being the town where Kool-Aid was invented. Consequently, the city celebrates the Kool-Aid Days festival every August for three days. The Kool-Aid Classic is a part of this festival.

Kool-Aid Days has been celebrated since 1998 with a different theme every year. The celebration gathers thousands of people and includes features such as the World's Largest Kool-Aid Stand, giant inflatable rides, carnival games, parades, food stands, contests and trolley rides through the Hastings Historic District. Activities take place in different locations downtown, such as the Hastings Museum, Hastings City Auditorium, Highland Park and Lake Hastings, among others.⁸ The Kool-Aid Classic Bicycle Tour, however, started in 2001. Participants ride through the scenic Pioneer Spirit Trail and paved country roads around the Hastings area.

While the Kool-Aid Days attract visitors of all ages, the majority of the race participants are between the ages of 40 and 50. The ride offers four different routes: 20 miles, 40 miles, 65 miles, and a 49-mile gravel route. There are several rest stops along the route where riders can drink Kool-Aid. The race starts in the Highland Park parking lot at 8:00 am. As gravel bicycle ride popularity has been increasing in recent years⁹, the 49-mile gravel route was introduced to the event in 2019. This route covers rolling hills and roads with minimum maintenance, and overall, there are less than 5 miles of pavement and no roving support. The Kool-Aid Classic covers different local roads depending on the routes, and also tracts of US 6, US 34 and US 74 between Hastings, Roseland and Ayr.

The Pioneer Spirit Trail is a 9-mile continuous trail system that offers a route between the major recreational centers in Hastings: Libs Park, Heartwell Park, Lake Hastings, Hastings College, and the Downtown Central Business District. The trail has been funded primarily by Federal Funds, but all the proceeds from the Kool-Aid Classic Bicycle Tour are placed in a special fund with the Hastings Community Foundation, which is meant to be used for the construction, maintenance and improvement of the trail. By 2019, over \$33,000 had been raised by the Kool-Aid Classic.¹⁰

The COVID-19 pandemic has led to the cancellation of not only the Kool-Aid Classic Bicycle Tour in 2020, but also of the entire Kool-Aids Days festival. The risk that is posed by a series of events that gather visitors in a city of less than 25,000¹¹ amidst a pandemic forced the organizers to choose the health of their community over the touristic and economic benefits of Hastings's best-known celebration.

⁸ Kool-Aid Days. Kool-Aid Days Board. Accessed June 20, 2020. <https://www.kool-aiddays.com>

⁹ Fredricksen, Clark. "Road is Losing. Gravel is Winning. Here are the Numbers." Essays. To Be Determined. https://owl.purdue.edu/owl/research_and_citation/chicago_manual_17th_edition/cmos_formatting_and_style_guide/periodicals.html

¹⁰ Kool-Aid Classic Bicycle Tour. Sandahl, Bruce and Alissa. Accessed June 20, 2020. <http://www.kaclassic.com>

¹¹ "ACS Demographic and Housing Estimates." American Community Survey. United States Census Bureau. Accessed May 19, 2020. <https://data.census.gov/cedsci>

Impacts

Given its place as the main event that promotes recreational bicycling in Hastings and the surrounding areas, the Kool-Aid Classic Bicycle Tour has a significant direct economic impact on the city's restaurant, hospitality and commercial sports industries. As is the case with other events that attract large numbers of visitors, gas stations and convenience stores in Adams County also benefit by the increased traffic that is caused by the participants of the Kool-Aid Classic and their families. The collective impact of the Kool-Aid Classic and the rest of the Kool-Aid Days events makes them one of Hastings's most important means of promotion amongst visitors.

Calculating Economic Impacts

Different sources were used for the estimation of economic impacts:

- (1) Interviews with the organizer provided the number of participants, the length and nature of their stay, their spending behaviors, and their distribution either as local or visitors.
- (2) The published Kool-Aid Classic event details served to determine the price of registration.
- (3) IMPLAN's 2018 database of buy-sell relationship factors by sector in Adams County is the basis for the calculation of indirect and induced impacts.

We calculated the direct economic impact of the Kool-Aid Classic by adding the estimated expenditure of participants and their families in 2019. Expenditures were divided in the following categories: (A) registration fees, (B) lodging, (C) meals, (D) fuel and groceries. Event participants were divided as either locals or visitors, as the expenditure patterns of these groups differ from each other. We then calculated indirect and induced impacts of the race for all of Adams County using IMPLAN, with the aforementioned direct impacts (i.e., total expenditures from each category) as an output to estimate indirect and induced impacts for the corresponding industry sectors.

(A) Revenue from registration fees was calculated by multiplying the number of participants in 2019, 268, by the registration fee of \$30, which resulted in a total of \$8,040.

(B) Lodging revenue was estimated by assuming that only non-local participants paid for lodging, staying in Hastings for one night at an average price of \$115 per night. Since 221 out of the 268 participants in 2019 were non-local, the total lodging revenue was estimated at \$25,415.

(C) Most Kool-Aid Classic participants bring their family to the event, and thus, the meal expenditure is estimated by assuming a conservative party size of two. Registration fees include a meal for the participant, resulting in different expenditures for participants and companions. Locals are assumed to dine out the day of the event, with participants spending an average of \$10 and their companions \$25. Visitors are assumed to spend an average of \$75 in meals, and their companions \$90. Total meal expenditure due to the event is estimated at \$38,110 (see Table 2.2.1).

Table 2.2.1: Kool-Aid Classic Meal Expenditure		
<i>Origin</i>	<i>Local</i>	<i>Visitor</i>
<i>Number</i>	47	221
<i>Average Participant Expenditure</i>	\$10	\$75
<i>Average Companion Expenditure</i>	\$25	\$90
<i>Total Participant Expenditure</i>	\$470	\$16,575
<i>Total Companion Expenditure</i>	\$1,175	\$19,890
Total Expenditure	\$1,645	\$36,465

(D) Fuel and groceries expenditures were estimated at an average of \$50 per non-local participant, resulting in a total expenditure of \$11,050 in this industry.

Results

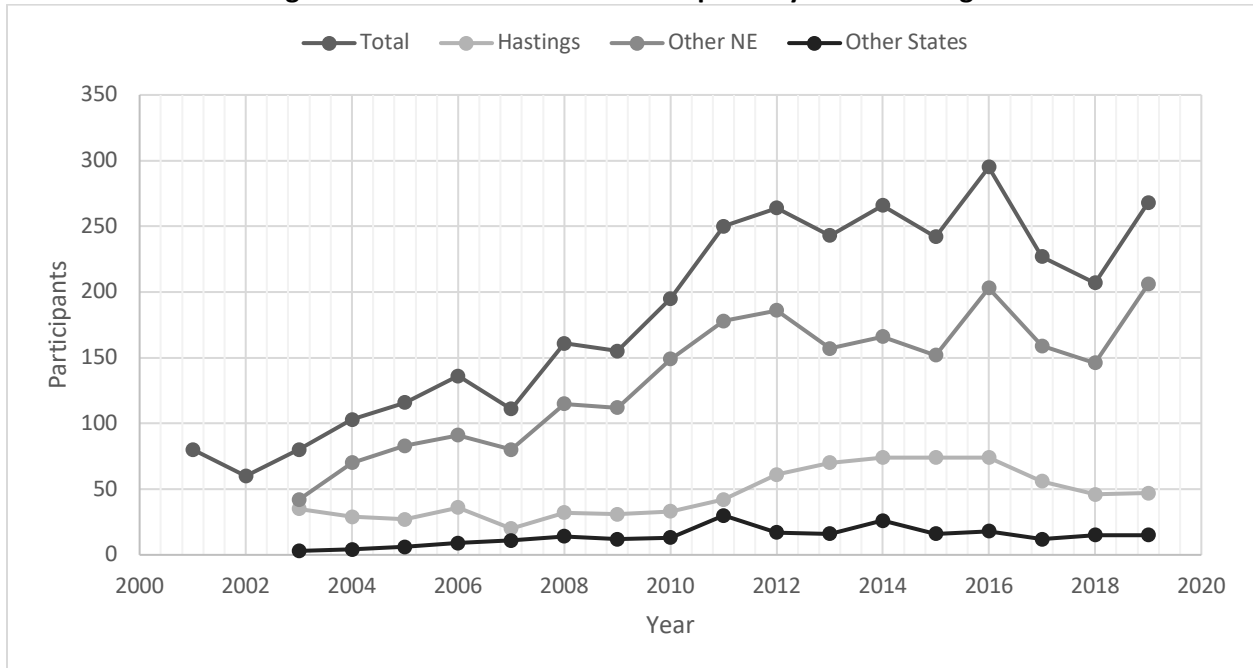
Findings indicate total economic impacts (i.e., direct, indirect, and induced) from the Kool-Aid Classic Bicycle Tour were \$110,294 for Adams County. An IMPLAN analysis of these revenues by industry sector results in the calculation of the following economic impacts of the Kool-Aid Classic:

- A direct impact of \$74,036, a labor income of \$24,895 and a direct value added of \$39,401.
- An indirect impact of \$21,451, benefiting mostly the commercial sports, real estate and public utilities industries.
- An induced impact of \$14,807, benefiting mostly the real estate, hospitality and public utilities industries.
- A federal tax revenue of \$6,808.
- A state and local government tax revenue of \$3,066.

Implications

The Kool-Aid Classic Bicycle Tour has grown from 80 participants in 2001 to 268 in 2019, having reached a maximum of 296 participants in 2016 (see Figure 2.2.1). The organizers want to make the event grow but do not know how. There is a concern that bicycle events tend to disappear as the original organizers grow older and retire, limiting their lifespan to approximately 20 years. In the case of the Kool-Aid Classic, it can be seen that the event seems to have reached a peak in the 200-300 participant range.

Figure 2.2.1: Kool-Aid Classic Participants by Year and Origin



Source: Historical data provided by the event organizer.

As is the case with other events, the organizers of the Kool-Aid Classic point out road maintenance as one of the aspects that affect the planning of the event the most, as well as the safety of participants. In prior years, the route has had to be changed due to deteriorating road conditions and a lack of coordination in the scheduling of road construction and maintenance.¹²

In spite of its challenges, the Kool-Aid Classic is an example of a successful bicycle race that has managed to raise significant funds for its community, and more importantly, to contribute to the notoriety of Hastings in conjunction with the rest of the Kool-Aid Days celebrations. Nebraskan cities can exploit their history and unique features to complement local festivals with bike races that attract a significant number of tourists from within the state. While a bicycle race on its own might not attract thousands of visitors, festivals that include different sporting and recreational events have the potential to boost the economy of struggling cities in remote areas of Nebraska.

¹² Bruce Sandahl (Kool-Aid Classic Bicycle Tour organizer) in discussion with the author, March 2020.

CASE STUDY 3: NACHO RIDE

Event Overview

The Nacho Ride is a weekly recreational bicycle ride that takes place every Tuesday evening, starting early in the spring until late in the fall. The periodic event follows the MoPac Trail from Lincoln to Eagle, and back for a total of 20 miles roundtrip. The main group of *nacho-riders* meets at the intersection of 84th St and L St in Lincoln at 5:30 p.m. to ride together to Bailey's Local, a bar and restaurant in Eagle. Once they have reached their destination, *nacho-riders* have drinks and nachos while enjoying the bar's atmosphere and camaraderie that stems from the recurring bicycling event. Other groups of participants also join into the Nacho Ride at different locations along the trail. Riders that partake in the Nacho Ride comprise all ages, but most of them are within the 20- and 55-year-old range.

The MoPac Trail was originally a rail trail along the former Missouri Pacific Railroad's Omaha Belt Line. The trail extends 26 miles from Lincoln to Wabash and is still undergoing important extensions, such as a planned extension to the west that will connect the existing path with other trails near the University of Nebraska-Lincoln's city campus, and an extension to the east that will connect the path to trails in South and West Omaha. On its eastward course, the MoPac Trail currently passes the following communities: Walton, Eagle, Elmwood, and Wabash. *Nacho-riders* also use part of US 34 as the MoPac trail crosses this route between Walton and Eagle.

The ride on the MoPac Trail from Lincoln to Eagle offers a semi-rural experience near the city, in which participants cross a variety of bridges, tunnels, creeks and parks. The first 3 miles of the ride are downhill, followed by a gradual ascent throughout the next 7 miles that lead into Eagle. The trail's landscape invites *nacho-riders* to pause along the way to enjoy nature and scenic views. The Nacho Ride also provides opportunities to spot local wildlife in the fields along the trail. Upon reaching Eagle, riders have the alternative to visit other businesses in Eagle.

The Nacho Ride started in the summer of 2008 when a retired teacher from Lincoln, Phil Wolfe, led a group of five bicycling enthusiasts to the One-Eyed Dog Saloon, which closed its doors in 2015, and eventually became Bailey's Local. What started as a group of five riders has now become a group of over 400 people participating at the peak of the season. Phil Wolfe's inspiration to start the Nacho Ride came from the Thursday Night Wabash Trail Taco Ride in Iowa, a similar 20-mile recreational bicycle ride that takes place every Thursday evening on the Wabash Trace Nature Trail, from Council Bluffs to Mineola, and back. The idea behind both events is for riders to enjoy a social evening filled with bicycling, scenery, food, and drinks. Bailey's Local tailors Tuesday evenings to accommodate the Nacho Ride. The restaurant prepares nachos and tacos specifically for the event, in addition to the regular menu, famous for one of the best Reuben sandwiches in the area.

Bailey's Local opened its doors in May 2016, replacing the former One-Eyed Dog Saloon, the restaurant where *nacho-riders* used to gather. The restaurant has good local support and the Nacho Ride brings a large number of customers from Lincoln and other neighboring communities. On Tuesday nights, Bailey's Local offers \$5 nachos and taco specials, as well as the regular menu that includes entrees, burgers, sandwiches and wraps with prices ranging from \$10 to \$25. Most Nacho Ride participants

consume food and alcoholic beverages while enjoying the bar's amenities such as pool tables, and live sports on TV. Most riders stay until the restaurant's closing time at 11 p.m.

The COVID-19 pandemic has caused the cancellation of the Nacho Ride in 2020, and Bailey's Local was no exception among the numerous restaurants and bars that were affected by the subsequent economic consequences. The business's hours of operation were reduced, with online and phone takeout orders substituting dine-in service.

Impacts

The Nacho Ride primarily benefits Bailey's Local, and to a lesser extent, other bars and restaurants in Eagle and along the MoPac Trail. Thus, the direct economic impact of the Nacho Ride was calculated based on the number of customers that visited Bailey's Local throughout the 2019 Nacho Ride season. Nacho Ride participants go to Bailey's Local after Easter and continue to visit until the second week of November, depending on the weather. The event sees the majority of participants between May and August, and it peaks in July when the weather is more favorable.

Calculating Economic Impacts

Three sources were used to estimate the economic impacts of the Nacho Ride:

- (1) An interview with the owner of Bailey's Local provided a basic guideline for the minimum and maximum number of participants throughout the 2019 season, as well as data regarding their typical expenditure.
- (2) Strava data on the number of bicycle users that crossed an edge within the Nacho Ride route during the time frame of each event in 2019 was used to estimate the total number of participants per day.
- (3) IMPLAN's 2018 database of buy-sell relationship factors by sector in Cass County is the basis for the calculation of indirect and induced impacts.

Approximately 450 riders visited the restaurant at the peak of the 2019 season on Tuesday, July 23rd. On the same date, 195 Strava users crossed an edge along the Nacho Ride's route, that is, about 43% of the *nacho-riders* reported by the owner of Bailey's Local. Assuming that the proportion of Strava users to actual riders remained constant throughout the season, the Nacho Ride consisted of a total of approximately 3,692 individual bicycle rides (see Table 2.3.1).

Table 2.3.1: Nacho Riders to Strava Users per Event Instance			
<i>Event Instance</i>	<i>Date</i>	<i>Nacho Riders</i>	<i>Strava Users</i>
1	4/23/2019	69	30
2	4/30/2019	0	0
3	5/7/2019	0	0
4	5/14/2019	242	105
5	5/21/2019	0	0
6	5/28/2019	0	0
7	6/4/2019	162	70
8	6/11/2019	58	25
9	6/18/2019	0	0
10	6/25/2019	162	70
11	7/2/2019	323	140
12	7/9/2019	208	90
13	7/16/2019	231	100
14	7/23/2019	450	195
15	7/30/2019	369	160
16	8/6/2019	346	150
17	8/13/2019	254	110
18	8/20/2019	115	50
19	8/27/2019	173	75
20	9/3/2019	127	55
21	9/10/2019	104	45
22	9/17/2019	162	70
23	9/24/2019	104	45
24	10/1/2019	0	0
25	10/8/2029	35	15
26	10/15/2019	0	0
27	10/22/2019	0	0
28	10/29/2019	0	0
29	11/5/2019	0	0
30	11/12/2019	0	0
Total		3,692	1,600

On average, each rider spent \$16, resulting in a total revenue of \$59,077 from food and beverages for Bailey’s Local. Given the restaurant’s policy to allow riders to bring their own beverages, it is likely that some *nacho-riders* also spent money in other businesses such as gas stations or convenience stores on their way to Eagle. Considering an average convenience expenditure of \$5, it is estimated that *nacho-riders* spent an additional \$18,462 en-route.

Results

Findings indicate total economic impacts (i.e., direct, indirect, and induced) from the 2019 Nacho Ride to be \$82,163 for Cass County. An IMPLAN analysis of these revenues by industry sector results in the calculation of the following economic impacts:

- A direct impact of \$63,206, a labor income of \$18,841 and a direct value added of \$31,173.
- An indirect impact of \$14,465, benefiting mostly the real estate industry and the local government.
- An induced impact of \$4,492, benefiting mostly the industry of owner-occupied dwellings.
- A federal tax revenue of \$4,619.
- A state and local government tax revenue of \$6,446.

Implications

Bailey's Local intends to continue making the Nacho Ride grow, as its revenue is significantly influenced by this event. The Nacho Ride's historical growth and success has forced Bailey's Local to invest in improvements that increased the restaurant's capacity to keep up with the number of visitors. Recent upgrades included designating space for bicycle storage and the expansion the dining area into the basement.¹³

The two main issues that affect *nacho-riders* are: (1) the lack of bicycle parking in Eagle, and (2) highway and trail maintenance.¹⁴ For local government and businesses, this suggests the possibility of investing in bicycle parking infrastructure that would improve the safety of the participants' bicycles and gear, and thus, foster further economic growth. At the State level, the need to invest in road crossings and overall maintenance becomes evident, as a single event can lead to a significant increase in bicycle traffic on segments of highways.

More importantly, the Nacho Ride is just one of numerous spontaneous non-competitive bicycling events that draw large crowds around the nation. An attractive bicycle trail system that passes through other cities in Nebraska, along with safe roads, can promote the development of similar events that benefit small businesses in rural communities near urban cores.

¹³ Ty McIntosh (owner of Bailey's Local) in discussion with the author, March 2020.

¹⁴ Ibid.

CASE STUDY 4: SATURDAY MORNING NO DROP FAT BIKE RIDE

Event Overview

The Saturday Morning No Drop Fat Bike Ride (SMNDFBR) is a multi-surface bicycle event sponsored by Cycle Works, a cycle shop in Lincoln, Nebraska. The organizer of the event plans a different route every week and posts it on its Facebook event page. Participants meet at Cycle Works' parking lot on Saturdays at 9:30 a.m. and come back to the shop at the end of the ride. The main idea of the event is for riders to enjoy a social adventure.

Cycle Works opened its doors in 1981, with five bikes and \$300 in accessories. Since then, the shop has expanded and it now maintains a large inventory of bicycles, parts, accessories and clothing. The shop has expert salespeople and mechanics, offering riders a customized purchase experience along with repair and maintenance services. Cycle Works also sells a variety of fat bikes, which are bicycles with wider tires that are designed for riding on unstable terrains such as snow, sand and mud. Fat bikes are ideal for the SMNDFBR during the winter.¹⁵

The SMNDFBR started in December of 2014 and it was originally advertised as a ride exclusively for fat bikes, as the name of the event implies, but as time went by the event transformed into a mixed bicycle ride. It is an intermediate level ride with occasional stops that allow beginners to catch up. The event takes place year-round, almost irrespective of weather. Given the above, distances ridden depend on the season and weather conditions. During warmer months, rides are longer (within 40 and 60 miles), while in colder months, rides are shorter with the possibility of the event being cancelled in extreme conditions.

Every week, SMNDFBR participants ride to a different town. Historically, organizers have already organized a ride to almost every single town within a 50-mile radius of Lincoln. In 2019, riders visited Eagle, Elmwood, Raymond, Malcolm, Sprague, Palmyra, Garland, Valparaiso, Bee, Dwight, Beatrice, Bennet, Kramer, Waverly, Denton, Pleasant Dale, Davey, Hallam, Wilber and Barneston, among others. When riders arrive to a particular town, they enjoy food and drinks at a local restaurant or bar. If the ride is short, riders stop at a convenience store instead of a restaurant or bar.¹⁶

In April 2020, the organizers announced that they would not be promoting more SMNDFBR events on Facebook due to the COVID-19 pandemic, but also encouraged cyclists to bike and stay healthy as they continue to organize events with smaller groups while enforcing social-distancing measures.

Impacts

In 2019, SMFNDFBR riders visited the following counties: Lancaster, Otoe, Cass, Seward, Saunders, Butler, Gage and Saline. The small towns that riders visit are not typical destinations for automobile traffic, thus, a sizeable group of cyclists visiting and purchasing food and drinks in these locations

¹⁵ Cycle Works Bike Shop. Cycle Works. Accessed June 20, 2020. <https://www.cycleworksusa.com>

¹⁶ Rob Evans (event organizer) in discussion with the author, February 2020.

significantly helps local businesses. The SMNDFBR group also prefers sourcing bicycles and gear locally, even if the cost is higher than online, in order to contribute to their community.

Calculating Economic Impacts

Three sources were used to estimate the economic impacts of the SMNDFBR:

- (1) An interview with Rob Evans provided a guideline for the average number of participants throughout the 2019 season, as well as data regarding their typical expenditure.
- (2) Cycle Works' Facebook event page for the SMNDFBR provided information about the number of rides organized per year and their routes.
- (3) IMPLAN's 2018 database of buy-sell relationship factors by sector in Lancaster, Otoe, Cass, Seward, Saunders, Butler, Gage and Saline Counties is the basis for the calculation of indirect and induced impacts.

We calculated the direct economic impact of SMNDFBR by estimating total expenditures of event participants in 2019. An average of 20 cyclists participated in each SMNDFBR ride, and each rider spent an average of \$15 in meals and drinks. There were approximately 40 rides throughout 2019. Thus, the total revenue was obtained by multiplying three factors: the average number of riders, the number of rides in 2019, and the average expenditure. Total revenue generated by the event was calculated at \$12,000.

We then calculated indirect and induced impacts of SMNDFBR for all of Lancaster, Otoe, Cass, Seward, Saunders, Butler, Gage and Saline Counties using IMPLAN, considering the aforementioned total revenue as an output of the restaurant industry. The IMPLAN analysis then produced an estimate of the direct, indirect and induced impacts for all the related industry sectors.

Results

Findings indicate total economic impacts (i.e., direct, indirect, and induced) from the 2019 SMNDFBR to be \$15,841 for all Lancaster, Otoe, Cass, Seward, Saunders, Butler, Gage and Saline Counties. An IMPLAN analysis of these revenues by industry sector results in the calculation of the following economic impacts:

- A direct impact of \$12,000, a labor income of \$3,595 and a direct value added of \$5,819.
- An indirect impact of \$2,452, benefiting mostly the real estate industry and the local government.
- An induced impact of \$1,389, benefiting mostly the industry of owner-occupied dwellings.
- A federal tax revenue of \$897.
- A state and local government tax revenue of \$546.

Implications

For the counties that the SMNDFBR visits, the event represents economic benefits as well as increased awareness of the locality as a potential destination for visitors to return. As shown in the results section, SMNDFBR alone contributes over \$15,000 to the economy of eight counties. This event can be replicated in numerous Nebraskan towns, incentivizing the development of the local recreational

bicycling industry. Furthermore, the popularity of fat bike events has increased on a national level, as fat bikes are ideal for riding on unstable terrains, allowing events such as SMNDFBR to take place year-round. Cycle Works organizes several other rides throughout the year, the biggest ones being: Global Fat Bike Day in December, the Holiday Lights Ride, a Halloween ride, and a group ride on Thursdays during the summer.

Besides from the rides sponsored by Cycle Works, there are several other cyclist group rides to small towns and local gravel events in the summer that can draw several hundred riders on a given weekend, which also offer an opportunity for small Nebraskan towns to profit from recreational bicycle on a regular basis. However, the success of these events relies on the availability of safe trails and roads that connect small communities to larger urban centers.

CASE STUDY 5: GRAVEL WORLDS

Event Overview

Gravel Worlds is a recreational gravel bicycle ride that takes place every August in Lincoln, Nebraska. The one-day ride is a part of a four-day event in which riders meet each day in Fallbrook and adventure through the surrounding countryside. The event offers participants three different courses: a 150-mile ride also called *Gravel Worlds*, the *Privateer Gravel Grinder* 75-mile course, and the *Buccaneer* 50-mile course. Each course has different categories organized according to participants' gender, age and type of bicycle. The *Gravel Worlds* course is the only competitive race with awards and prizes.¹⁷

Different aspects about Gravel Worlds add to the exciting and adventurous nature of the event. The specific course routes are not released until the week of the event; thus, participants join the race with scarce knowledge of the course. In addition, courses are not marked and participants must navigate using cue sheets and a GPX file for navigation devices. Riders cannot receive outside assistance except in authorized locations such as checkpoints. However, there are oasis locations with water and snacks, small town stores to purchase items, and assistance from fellow participants is allowed.¹⁸

The races intentionally encompass small towns as a means to display farms, abandoned buildings, lakes, grasslands, and other visual features of rural Lancaster County. Some of the residents of these small towns open up their properties for the event and allow visitors to acquaint themselves with local history and traditions.

Gravel Worlds was created by the Pirate Cycling League, founded in 2006 by a group of friends from Lincoln that wanted to create a bicycling event with their own set of rules. The league offers non-traditional cycling events focused on the fun and recreational aspects of cycling. Most of the groups' events involve riding gravel, gravel road racing, mountain bikes or cyclocross. Membership for the group is free and there are no annual dues. Gravel Worlds was started in 2008 with only 21 participants. By 2019, the race had grown to almost 500 participants.

The COVID-19 pandemic has caused the cancelation of Gravel Worlds 2020. Due to the massive number of visitors from out of town that participate in Gravel Worlds, and the interaction of riders with small communities in rural Lancaster County, event organizers decided to prioritize the safety of the participants and these communities by postponing the event until 2021. Riders that were registered for the event were given the option of a deferral or a refund. Inevitably, the positive economic impacts of the event will not be perceived in 2020.

¹⁷ Gravel Worlds. Gravel Worlds. Accessed June 20, 2020. <https://gravel-worlds.com>.

¹⁸ Alub, Venny. Athlete Spotlight: Craig Schmidt of the Pirate Cycling League. Cantu Cycling Wheels, 2017. <http://www.cantuwheels.com/behindthewheels/2017/8/4/athlete-spotlight-craig-schmidt-of-pirate-cycling-league>

Impacts

We calculated Gravel Worlds' economic impact based on its last edition, which took place on Friday, August 16, 2019. In spite of the race being a one-day event, Gravel Worlds' impact extends over the span of a few days, involving different activities that gather participants and generate revenue for different businesses in Lancaster County. For example, in 2019, the event started with a gathering on Wednesday at Cycle Works, a local bicycle shop. On Thursday, there was a meet and greet with the Pirate Cycling League at SchillingBridge Cork and Tap House, a restaurant in the Fallbrook neighborhood. On Friday, there was a Gravel Worlds exposition in Fallbrook for riders to check-in and pickup packets. The exposition had numerous vendors and food provided by SchillingBridge. There were also a morning and an afternoon social ride. The race took off Saturday morning and upon its completion, participants gathered at SchillingBridge for the award ceremony, food and drinks, and camaraderie.

Calculating Economic Impacts

Three sources were used to estimate the economic impact of Gravel Worlds:

- (1) An interview with Corey Godfrey, founder of Gravel Worlds, provided a guideline to estimate the typical expenditure of the event's participants and to allocate them in different industries.
- (2) The Gravel Worlds event website provided detailed data on the number of participants and their origin as locals or visitors.
- (3) IMPLAN's 2018 database of buy-sell relationship factors by sector in Lancaster County is the basis for the calculation of indirect and induced impacts.

We calculated the direct economic impact by estimating total expenditures by event participants, divided into four categories: (A) registration fees, (B) lodging, (C) meals, (D) fuel and groceries. We then calculated indirect and induced impacts of Gravel Worlds for Lancaster County using IMPLAN, with the aforementioned direct impacts (i.e. total expenditures from each category) as a revenue output of the corresponding industry sectors.

The majority of the event's participants were visitors to the state of Nebraska. Approximately 58% of participants were from out of state, 38% of participants were Lincoln residents, and the remaining 4% were Nebraskans from other localities. Most gravel events are trying to increase the proportion of female, younger, and underrepresented demographics; however, most of the participants in Gravel Worlds were males over the age of 40.¹⁹ As a way to change those demographics, Gravel Worlds offers free registration to people that cannot afford to attend.

(A) Any of the three courses had a price of \$90 per participant as of 2019. Thus, considering a total of 496 participants, the event earned \$44,640 from registration fees alone in its last edition.

(B) To estimate the event's direct impact on the lodging industry, event participants were divided as either locals or visitors, as the latter have to pay for lodging while they are in Lincoln for the event. A total of 496 cyclists attended the race, with about 62% of attendees being visitors that require lodging. Approximately 50% of visitors stayed in town for two nights, and the other half stayed for three nights

¹⁹ Corey Godfrey (event founder) in discussion with the author, March 2020.

to enjoy the activities surrounding the event. Based on these assumptions and estimates, the total revenue generated by the lodging industry in Lancaster County due to Gravel Worlds was calculated at \$115,500.

(C) Participants' expenditure in restaurants, coffee shops and other food and drink-related venues was calculated by assuming that each resident spent \$25 during the event, and that each visitor spent \$60 per day during the event. Dividing the participants by the length of their stay and multiplying these numbers results in a total of \$60,140 in restaurant industry revenue.

(D) Convenience expenses were calculated in a similar manner, by assuming that each visitor spent an average of \$50 in gasoline stores, totaling \$15,400.

Results

Findings result in a total economic impact (i.e. direct, indirect and induced) of \$408,363 due to Gravel Worlds 2019 for Lancaster County. An IMPLAN analysis of these revenues by industry sector results in the calculation of the following economic impacts:

- A direct impact of \$223,724, a labor income of \$64,406 and a direct value added of \$206,391.
- An indirect impact of \$112,546, benefiting mostly the commercial sports, real estate, and promoters of sports industries.
- An induced impact of \$72,092, benefiting mostly the real estate and restaurant industries.
- A federal tax revenue of \$23,721.
- A state and local government tax revenue of \$14,487.

Implications

Local businesses' revenue is significantly influenced by this event. Gravel Worlds benefits several hotels in Lincoln, especially the Graduate Hotel downtown, which is a sponsor of the event and typically books over 80 rooms during the weekend of the event.²⁰ Local restaurants, such as the sponsor SchillingBridge, perceive a substantial increase in revenue. Small town convenience stores along the race courses also benefit from the additional traffic. Stores in Loma, Valparaiso, Malcom, Denton, Sprague, Raymond commonly perceive gains from the event. A local Boy Scout troupe sets up a stand in the parking lot of the Valparaiso convenience store and sells snacks and beverages to finance their annual canoe trip, while another group in Malcolm sets up a stand by the baseball fields to raise money for the construction of a new baseball diamond.

Event organizers intend to make Gravel Worlds grow as a way to highlight the beauty of the Nebraska countryside and the touristic value of Lincoln and its surrounding communities. However, competition from similar events in other states that tend to be more favored by bicyclists is a major challenge. Limited funds and time for marketing and advertisement are considered as one of the main reasons that Gravel Worlds has not grown further. Additionally, the organizers believe that an investment in bicycle

²⁰ Corey Godfrey (event founder) in discussion with the author, March 2020.

infrastructure could potentially draw more people to the event as offering quick, safe and easy ways to transfer between roads and bicycle paths is an attractive feature for most riders.²¹

In spite of the aforementioned difficulties with growth, Gravel Worlds is one of the largest bicycling events in Nebraska, and the most successful individual bicycling event in Lancaster County. The existence of a large and well-maintained bike trail system enables the development of events such as Gravel Worlds, which can generate more than \$400,000 per year in revenue for their host communities in direct, indirect and induced economic impacts. Gravel Worlds is an example of the potential that Nebraskan cities have to attract out-of-state and international bicycle tourism, if the State and local government invest in adequate infrastructure that fosters entrepreneurs to organize large gravel rides.

²¹ Ibid. 14.

CASE STUDY 6: NEBRASKA UNITED METHODIST BIKE RIDE FOR HUNGER

Event Overview

The Nebraska United Methodist Bike Ride for Hunger (NUMB) is a four-day loop bike ride that takes place every year in four different locations within Nebraska, taking place on numerous national highways. The tour is a fundraising event sponsored by the Great Plains United Methodist Conference Mercy & Justice Team for the purpose of motivating participants to contribute to programs that help alleviate hunger around the world. The Great Plains Conference has more than 1,000 churches across Kansas and Nebraska with more than 220,000 members. The tour is open to all cyclists and not exclusive to United Methodists. NUMB participants are brought together by the idea of making a difference in the world by supporting hunger relief projects. Throughout the tour, riders enjoy spectacular views, learn about the history of the localities, and try out local food and entertainment.²²

NUMB co-founders, Reverend Bill Ritter and Greg Bakewell, met in 1992 at a Habitat for Humanity Charity Ride. The United Methodist Church had many projects to alleviate hunger that were lacking funding and publicity, leading to the decision to start NUMB in 1996 as a way to raise money and advertise the United Methodist Nebraska Conference Hunger Committee Projects. The first NUMB went from Chadron to Elkhorn Hills United Methodist Church on an approximately 400-mile ride, and only had 37 participants. Over the past 25 years, the ride has helped gather over \$1,000,000 to a variety of local, national and world hunger relief projects, such as: Heifer International, UMCOR, the Food Bank of Lincoln, and the Society of St. Andrew, among others.²³

The majority of NUMB 2019 riders were from Nebraska, while the second largest group of riders were visitors from Colorado. A smaller number of riders came from 19 other states: Alaska, Arizona, California, Colorado, Florida, Iowa, Illinois, Kansas, Minnesota, Missouri, Nebraska, South Dakota, Texas, Utah, Washington, Wisconsin, West Virginia and Wyoming.²⁴

The COVID-19 pandemic has caused the cancellation of NUMB 2020. The tour was scheduled for June at the Elkhorn Hills United Methodist Church. The first day of the ride covered from Elkhorn Hills to Ashland (50.3 miles); the second day from Ashland to David City (55.6 miles); the third day from David City to Fremont (47.5 miles); and the last day from Fremont to Elkhorn Hills (41.9 miles). The event was postponed to 2021 and organizers have offered full refunds to those who paid for the registration or donated money. Riders were also given the alternatives of using their 2020 registration fee and donations as a prepayment for NUMB 2021, or donating the funds to the charities that NUMB supports.²⁵

²² Bakkehaug, Kay. NUMB riders cycle for hunger. Star Herald, 2019.

https://www.starherald.com/hemingford/news/local_news/numb-riders-cycle-for-hunger/article_4cb4f8aa-9e90-11e9-9147-7bc0ac14bf4c.html

²³ Ritter, Bill. NUMB officially surpasses the \$1 million mark. Great Plains United Methodists, 2019.

<https://www.greatplainsumc.org/newsdetail/numb-officially-surpasses-the-1-million-mark-12843277>

²⁴ Bill Ritter (NUMB co-founder) in discussion with the author, March 2020.

²⁵ NUMB – Nebraska United Methodist Bike Ride for Hunger. NUMB. Accessed June 20, 2020.

<https://www.numbride.org/wordpress>

Impacts

We calculated NUMB's economic impact based for the 2019 event, which toured the northern half of the Nebraska Panhandle. The ride started in Chadron, heading west to Crawford (44.6 miles) on the first day, Alliance on the second day (57.6 miles); Rushville on the third day (72.7 miles), and back to Chadron on the final day (31.8 miles). This route toured three counties: (1) Dawes, (2) Box Butte, and (3) Sheridan.

Calculating Economic Impacts

Three sources were used to estimate the economic impact of NUMB:

- (1) An interview with the event co-founder, Reverend Bill Ritter, which provided the number of participants in 2019 and data regarding their typical expenditures.
- (2) The NUMB event website provided the price of registration and data on hunger-relief program donations.
- (3) IMPLAN's 2018 database of buy-sell relationship factors by sector in Dawes, Box Butte, and Sheridan counties is the basis for the calculation of indirect and induced impacts.

We calculated the direct economic impact by estimating total expenditures by event participants, divided into five categories: (A) registration fees, (B) lodging, (C) meals, (D) fuel and groceries, and (E) donations. We then calculated indirect and induced impacts of NUMB for Dawes, Box Butte and Sheridan counties using IMPLAN, with the aforementioned direct impacts (i.e. total expenditures from each category) as an output for the corresponding industry sectors.

(A) In 2019, 145 cyclists participated in the event. Depending on the date in which participants registered, the fee varied from \$55 to \$60 (\$57.5 on average). Thus, the event earned approximately \$8,338 from registration fees.

(B) To estimate the event's direct impact on the lodging industry, event participants were divided in those who camped and those who stayed in a hotel. NUMB provides designated camping sites within each host community, which are used by the majority of riders. We estimate that approximately 25% of the participants required lodging over the course of 5 days, and that the average cost per night was \$100. The total revenue generated by the lodging industry due to NUMB was calculated at \$18,125.

(C) Participants' expenditure in restaurants, coffee shops and other food and drink related venues was calculated by assuming that each participant spent \$75 on average per day, over the course of 5 days. Considering a total of 145 participants, this results in a total of \$54,375 spent on meals.

(D) Convenience expenses were calculated in a similar manner, by assuming that each participant spent an average of \$50 in gasoline stores, totaling \$7,250.

(E) In order to participate in the event, NUMB riders have to secure a minimum of \$100 pledged to United Methodists hunger-relief programs. We assume that each participant donated at least \$100, which totals \$15,000 contributed to community food and relieve services.

Results

Findings indicate a total economic impact (i.e. direct, indirect and induced) from NUMB 2019 was \$99,535 for Dawes, Box Butte and Sheridan Counties. An IMPLAN analysis of these revenues by industry sector results in the calculation of the following economic impacts of NUMB:

- A direct impact of \$74,122, a labor income of \$24,493 and a direct value added of \$35,361.
- An indirect impact of \$15,565, benefiting mostly the real estate industry and the management of companies and enterprises sector (NAICS 55).
- An induced impact of \$9,849, benefiting mostly the industries of owner-occupied dwellings.
- A federal tax revenue of \$6,162.
- A state and local government tax revenue of \$3,841.

Implications

NUMB has experienced significant growth over the years, but most United Methodist Churches cannot provide meals and accommodations for more than 150 persons, and hence, the event organizers have capped the number of participants. NUMB event has been hosted by 98 different churches in 101 communities. Participants have ridden through all 93 Nebraskan counties, positively impacting the economy of those counties and contributing to the awareness of the localities as potential touristic destinations for bicyclists.

However, the event is facing some challenges. More than half of the participants in 2019 were over the age of 60. And the second largest demographic group was comprised of riders ages 50 to 60, followed by riders over 70 and between the ages of 40 and 50. It is apparent that younger riders are not embracing multi-day rides and that the future of events such as NUMB is uncertain. Younger bicyclists are more interested in one-day events and the popularity of road races is declining as other type of activities such as mountain biking and gravel biking is on the rise.

Another important challenge for the survival of multi-day road races is the lack of investment by local and state governments in maintaining road shoulders in good condition. Alternative routes in high traffic areas are scarce, increasing the risk of riders as they either ride along vehicular traffic or transition into off-road surfaces with road bikes that are not designed for harsh conditions. Adequate road maintenance and ample shoulders constitute the key aspects that enable safe and enjoyable bicycling experiences that lead to the development of more events like NUMB. Multi-day races have the most widespread impact of any recreational bicycling event, as they cover multiple counties and demand higher expenditure levels from its participants. However, these events cannot flourish without a state-wide road network that promotes not only driving, but also bicycling.

DISCUSSION

Through the analysis of these six events, we have shown that bicycle tourism in Nebraska covers a wide variety of event types, ranging from dozens to hundreds of participants per year. Participants from different demographics are attracted to otherwise unattractive destinations for tourism within the State, creating a particularly positive economic impact in small rural communities.

Large events in small communities, such as the Robidoux Quick & Dirty, have a sizeable impact that is concentrated in the span of a few days. If other localities in the State could foster the conditions to host this type of events, bicycle tourism in Nebraska would lead to an even greater and more widespread economic impact. However, the infrastructure and touristic awareness required to grow bicycle tourism in Nebraska is lagging behind other states. The Bike Ride Across Nebraska (BRAN), possibly the largest bicycling event in the State, generates a direct spending of roughly \$1 million.²⁶ In comparison, the Register's Annual Great Bicycle Ride Across Iowa (RAGBRAI) generates a direct spending of more than \$16 million per year.²⁷ The interviews that were conducted for these case studies show that event organizers in Nebraska are not able to grow or maintain their events due to inadequate roads and a lack of maintenance in parts of the event courses. Nebraska's natural condition is not significantly different from Iowa's. Nonetheless, our State does not provide the same conditions that make it safe to ride a bike, and thus, that make it attractive for visitors to engage in recreational bicycling.

Each of the events covered in the case studies, regardless of their size, generated thousands of dollars in direct spending in food and drinks, lodging, convenience items, and registration fees, among others. Most bicycling events take place in urban or semi-rural environments in Southeast Nebraska.²⁸ This is not a coincidence, as Lincoln and Omaha have the largest populations in Nebraska but also the most developed trail networks and the safest roads for bicycling. Investing in bicycle infrastructure would provide the opportunity for rural Nebraska to capitalize on bicycling events in the same manner that small towns surrounding larger urban centers and neighboring states currently do.

²⁶ Approximation based on the average spending per participant of the six case studies, adjusted for BRAN's number of participants and duration.

²⁷ "Economic and Health Benefits of Bicycling in Iowa." Iowa Bicycle Coalition. Accessed October 5, 2020. <https://iowabicyclecoalition.org/wp-content/uploads/2012/04/2012-Economic-Impact-Study.pdf>

²⁸ Out of 46 events that were covered in this research, 26 took place in Douglas, Lancaster and Saunders counties.

CHAPTER 3: IMPLAN ANALYSIS

INTRODUCTION

Chapter 3 assesses the economic impact of recreational bicycling at the state-level. The analysis relies on IMPLAN for the estimation of direct, indirect and induced effects of both unorganized recreational bicycling and planned events as a whole. IMPLAN uses an input-output model and input datasets of buy-sell relationships within industries in the study area.²⁹

For the purpose of this state-level analysis, recreational bicycling is divided into two categories: (1) bicycling tourism, and (2) residential recreational bicycling. The first category covers bicycling activity that is generated by organized events and visitors. The latter refers to endemic activity of residents to a locality that engage in recreational bicycling in an unorganized yet regular manner.

In order to quantify the impact of bicycling tourism, we compiled a list of cycling events in Nebraska and gathered data on the number of participants that attend each event. This list of events only covers the observable extent of bicycling tourism in Nebraska, hence, setting the guideline for the minimum level of bicycling tourism in the state. We estimated the total bicycling tourism activity for the state based on an assumption of the share of the yearly tourists that engage in cycling as part of their visit. We quantified residential recreational bicycling activity assuming a percentual share of the total population that engages in bicycling for non-utilitarian and commuting purposes.

After quantifying recreational bicycling activity in this manner, we categorized the expenditure of participants in each event into different categories that correspond to the industry classification of IMPLAN's input-output model. We then used IMPLAN to estimate the various economic impacts of recreational bicycling. Economic impacts were determined considering three scenarios: critical, realistic and optimal in order to establish a range of values. This approach presents the size and impacts of the recreational bicycling industry in a more comprehensive and truthful way, given that all findings of this report are estimates rather than precise values.

Findings of the economic impact analysis are presented at the State level, and divided in three categories: direct, indirect, and induced impacts. These impacts are broken down in terms of output, value added, employment, and labor income. Additionally, the tax revenue that is estimated to be generated by different levels of government is presented in the same three categories.

²⁹ For more information, see <http://implan.com>.

RECREATIONAL BICYCLING ACTIVITY

Bicycling Tourism

Observable Data

A total of 46 recreational bicycling events in Nebraska were categorized by frequency in order to determine the number of annual participants (see Table 3.1). Most bicycling events are organized in an annual basis, however, some events such as the Nacho Ride (see Case Study 3 in Chapter 2) are weekly or monthly.

<i>Event</i>	<i>Frequency</i>	<i>Duration</i>	<i>Annual attendance*</i>
Tour de Nebraska	Annual	5	500
BRAN	Annual	7	600
NUMB	Annual	4	150
Bike MS	Annual	2	33
Corporate Cycling Challenge	Annual	1	4,000
CCC-Gran Fondo	Annual	1	150
Kool-Aid Classic	Annual	1	268
Frosty Bike Ride	Annual	1	150
Nacho Ride**	Weekly	1	3,692
Loup d'Loup	Annual	1	100
Homestead 100	Annual	1	34
Heatstroke 100	Annual	1	39
Gravel Worlds	Annual	1	496
Firecracker 50	Annual	1	560
Mead Covenant Spring Spin	Annual	1	25
Omaha Jackrabbit	Annual	1	150
Owl Ride	Annual	1	1,000
Psycowpath-Swanson Shoot Out	Annual	1	123
Psycowpath-Platte River Battle Royal	Annual	1	99
Psycowpath-Tranquility Trail Tantrum	Annual	1	131
Psycowpath-Calvin Crest Crankfest	Annual	1	102
CSG-Mountain Bike	Annual	1	55
CSG-Gravel Grinder	Annual	1	66
CSG-BMX Racing	Annual	1	48
CSG-BMX Freestyle	Annual	1	17
Robidoux Quick & Dirty	Annual	2	500
Rollin' to Colon	Annual	1	70
Solstice Gravel Grinder-Solstice 100	Annual	1	125
Solstice Gravel Grinder-Solar Fiddy	Annual	1	75
Solstice Gravel Grinder-The Kindler	Annual	1	50
BBC Saturday Morning Ride**	Weekly	1	1,000

Continuation – Table 3.1			
Spring Fling	Annual	1	20
Tour de Husker	Annual	2	250
Wear Yellow Ride	Annual	1	765
Y Not Ride	Annual	1	20
Monument 2 Monument Bike Ride	Annual	1	20
Omaha Brewery Tour***	Annual	1	100
Metro Brew Tour***	Annual	1	100
Washington County Fair Ride	Annual	1	31
Tour de Brew***	Monthly	1	900
Husker Hundo	Annual	1	200
Infusion to Infusion Bike Ride***	Annual	1	100
Panhandle Pedal Grinder	Annual	1	25
SmNDFBR**	Weekly	1	800
Calamus Half Century Bike Tour	Annual	1	175
Thursday Night Taco Ride**	Weekly	1	1,250
Total			19,164

**All attendance data corresponds to 2019 and 2020.*

***While attendance data for the annual events was obtained directly from official counts, the organizers or news releases, some weekly events lacked a reliable source, and thus, annual attendance was calculated by multiplying the average attendance by 25 weeks per year. Some weekly events such as the SmNDFBR, based in Lincoln, extend up to 40 weeks per year, with well-attended rides continuing throughout much of the winter (see Case Study 4 in Chapter 2); however, because year-round rides are the exception and not the rule, it was assumed that all other weekly events only cover the seasons with favorable weather.*

****For events that are organized by breweries and that lack official attendance data, the typical number of people that indicated that they attended through social media platforms and Strava groups was used to estimate annual attendance.*

Quantifying Bicycling Activity

Touristic attractions in the State of Nebraska received almost 18.4 million visitors in 2018, and approximately 32% of these visitors came from out-of-state.³⁰ We assume that at least 5% of that visitor population engages in recreational bicycling in an annual basis for an average of two days. This results in a total of 588,800 annual cycling days.

³⁰ “2018 Attraction Attendance Report.” Nebraska Tourism Commission. Accessed September 7, 2020. <https://visitnebraska.com/attraction-attendance/2018-attraction-attendance>.

Residential Recreational Bicycling

Quantifying Bicycling Activity

The State of Nebraska had a population of 1,506,189 in 2018. This population consisted of 1,004,755 employed and 501,434 unemployed or retired.³¹ Based on data gathered in prior studies,³² we assume that 5% of the employed population and 10% of the unemployed or retired population engage in recreational bicycling. Additionally, considering the typical weather patterns of Nebraska, we assume that there are at least 25 weeks of favorable weather per year,³³ and that the population that engages in residential recreational cycling does so at least once per week. This yields a total of 2,509,529 annual cycling days.

³¹ “ACS Demographic and Housing Estimates.” American Community Survey. United States Census Bureau. Accessed September 7, 2020. <https://data.census.gov/cedsci>.

³² Approximations reported in studies available from: <http://peopleforbikes.org/our-work/statistics/statistics-category/?cat=participation-statistics>.

³³ This assumption is informed by the interviews and data from weekly events that were observed in Nebraska.

RECREATIONAL BICYCLING EXPENDITURE

Bicycling Tourism

Bicycling tourism expenditure was divided in four categories: (1) registration fees, (2) lodging, (3) food and drinks, and (4) fuel and groceries. Event expenditures were estimated through a different method for each category.

(1) Registration Fees

Registration fees were estimated using the observable data from the list of events. The total registration fees expenditure was calculated by multiplying the number of participants by each event's fee (see Table 3.2). Some events had registration fees that varied by date of registration, selected race course, or the participant's age. For these events, the average fee was multiplied by the total number of riders. The total revenue from registration fees was calculated at \$602,113.75.

<i>Event</i>	<i>Average Registration Fee</i>	<i>Total Fees</i>
Tour de Nebraska	\$295.00	\$147,500.00
BRAN	\$217.50	\$130,500.00
NUMB	\$55.00	\$8,250.00
Bike MS	\$25.00	\$825.00
Corporate Cycling Challenge	\$25.00	\$100,000.00
CCC-Gran Fondo	\$28.00	\$4,200.00
Kool-Aid Classic	\$30.00	\$8,040.00
Frosty Bike Ride	\$0.00	\$0.00
Nacho Ride	\$0.00	\$0.00
Loup d'Loup	\$30.00	\$3,000.00
Homestead 100	\$30.00	\$1,020.00
Heatstroke 100	\$25.00	\$975.00
Gravel Worlds	\$90.00	\$44,640.00
Firecracker 50	\$0.00	\$0.00
Mead Covenant Spring Spin	\$30.00	\$750.00
Omaha Jackrabbit	\$0.00	\$0.00
Owl Ride	\$30.00	\$30,000.00
Psycowpath-Swanson Shoot Out	\$30.00	\$3,690.00
Psycowpath-Platte River Battle Royal	\$30.00	\$2,970.00
Psycowpath-Tranquility Trail Tantrum	\$30.00	\$3,930.00
Psycowpath-Calvin Crest Crankfest	\$30.00	\$3,060.00
CSG-Mountain Bike	\$35.00	\$1,925.00
CSG-Gravel Grinder	\$65.00	\$4,290.00
CSG-BMX Racing	\$25.00	\$1,200.00
CSG-BMX Freestyle	\$30.00	\$510.00

Continuation – Table 3.2		
Robidoux Quick & Dirty	\$55.00	\$27,500.00
Rollin' to Colon	\$30.00	\$2,100.00
Solstice Gravel Grinder-Solstice 100	\$50.00	\$6,250.00
Solstice Gravel Grinder-Solar Fiddy	\$45.00	\$3,375.00
Solstice Gravel Grinder-The Kindler	\$40.00	\$2,000.00
BBC Saturday Morning Ride	\$0.00	\$0.00
Spring Fling	\$30.00	\$600.00
Tour de Husker	\$30.00	\$7,500.00
Wear Yellow Ride	\$35.00	\$26,775.00
Y Not Ride	\$10.00	\$200.00
Monument 2 Monument Bike Ride	\$10.00	\$200.00
Omaha Brewery Tour	\$30.00	\$3,000.00
Metro Brew Tour	\$27.50	\$2,750.00
Washington County Fair Ride	\$20.00	\$620.00
Tour de Brew	\$5.00	\$4,500.00
Husker Hundo	\$35.00	\$7,000.00
Infusion to Infusion Bike Ride	\$0.00	\$0.00
Panhandle Pedal Grinder	\$48.75	\$1,218.75
SmNDFBR	\$0.00	\$0.00
Calamus Half Century Bike Tour	\$30.00	\$5,250.00
Thursday Night Taco Ride	\$0.00	\$0.00
	Total	\$602,113.75

(2) Lodging

To estimate the total lodging expenditure of visitors that engage in bicycling, an average lodging expenditure per participant per day was calculated for each event among the six case studies included in Chapter 2 (see Table 3.3). We multiply the average value of \$105.24 per day by the 588,800 annual cycling days, which results in a total lodging expenditure of \$61,965,312.

Table 3.3: Average Lodging Expenditure per Case Study				
<i>Case Study</i>	<i>Event Duration</i>	<i>Participants</i>	<i>Total Expenditure</i>	<i>Avg. Expenditure/Day</i>
RQD	2 days	500	\$63,074	\$63.07
Kool-Aid Classic	1 day	268	\$25,415	\$94.83
Nacho Ride	1 day	3692	N/A	N/A
SmNDFBR	1 day	800	N/A	N/A
Gravel Worlds	1 day	496	\$115,500	\$232.86
NUMB	4 days	150	\$18,125	\$30.21
			Average	\$105.24

(3) Food and Drinks

Based on the data from the six case studies that were included in Chapter 2, an average expenditure in restaurants, coffee shops and other food and drink venues was calculated per participant per day for each event (see Table 3.4). We multiply the average food and drinks expenditure per day of \$94.71 by 588,800 annual cycling days. This results in a total food and drinks expenditure of \$55,765,248.

<i>Case Study</i>	<i>Event Duration</i>	<i>Participants</i>	<i>Total Expenditure</i>	<i>Avg. Expenditure/Day</i>
Robidoux Quick & Dirty	2	500	\$24,750	\$24.75
Kool-Aid Classic	1	268	\$38,110	\$142.20
Nacho Ride	1	3692	\$59,077	\$16.00
SmNDFBR	1	800	\$12,000	\$15.00
Gravel Worlds	1	496	\$60,140	\$121.25
NUMB	4	150	\$54,375	\$90.63
			Average	\$94.71

(4) Fuel and Groceries

An average expenditure in gas stations and grocery stores per participant was calculated based on the data from the six case studies that were included in Chapter 2 (see Table 3.7). The total expenditure in the fuel and groceries category was then calculated as the average expenditure of \$42.65 per day by 588,800 annual cycling days, resulting in a total expenditure of \$25,112,320.

<i>Case Study</i>	<i>Participants</i>	<i>Total Expenditure</i>	<i>Average Expenditure per Day</i>	
Robidoux Quick & Dirty	500	\$25,000	\$50.00	
Kool-Aid Classic	268	\$11,050	\$41.23	
Nacho Ride	3692	\$18,462	\$5.00	
SmNDFBR	800	\$0	\$0.00	
Gravel Worlds	496	\$15,400	\$31.05	
NUMB	150	\$7,250	\$48.33	
			Average	\$42.65

Residential Recreational Bicycling

The average expenditure of residential recreational cyclists is the sum of the different costs in which this population incurs per cycling day. Considering the average cost of a bicycle to be \$700, distributed throughout 10 years of use with an average of one ride per week, the cycling day cost of a bicycle is approximately \$1.35. Additionally, recreational cyclists spend money on clothing, maintenance and accessories specifically for the purpose of bicycling, which we assume to add up to \$300 annually. Dividing that amount by 100 cycling days results in an expense of \$3.00 per cycling day. This yields an average expenditure of \$4.35 per residential recreational cycling day.³⁴

We multiply the average cycling day cost of \$4.35 by 2,509,529 annual cycling days, resulting in a total residential recreational bicycling expenditure of \$10,916,450. Furthermore, this total expenditure is allocated in eight different categories that correspond to IMPLAN's industry segments: (1) food and drinks, (2) fuel and groceries, (3) bicycle repair and maintenance shops, (4) entertainment, (5) lodging, (6) government revenue, (7) registration fees, and (8) other. We used the criteria compiled by Steer Davies Gleave (2015)³⁵ from prior studies to determine the share of the total expenditure that was allocated to each category, resulting in the values shown in Table 3.6.

<i>Category</i>	<i>Share</i>	<i>Expenditure</i>
Food and drinks	22.00%	\$2,401,619.00
Fuel and groceries	33.00%	\$3,602,428.50
Bicycle repair and maintenance shops	3.00%	\$327,493.50
Entertainment	5.00%	\$545,822.50
Lodging	14.00%	\$1,528,303.00
Government revenue	6.00%	\$654,987.00
Registration fees	2.00%	\$218,329.00
Other	15.00%	\$1,637,467.50
Total	100.00%	\$10,916,450.00

³⁴ Calculations based on the method used by Steer Davies Gleave (2015). See footnote 30.

³⁵ "The Economic Impact of Cycling in the Pikes Peak Region." Steer Davies Gleave, 2015. <https://www.adventurecycling.org>

Total Expenditure

We added the total amounts of overlapping expenditure categories of bicycling tourism and residential recreational bicycling, subsequently assigning these sums to the respective IMPLAN industry categorization (see Table 3.7).

<i>Category</i>	<i>Bicycling Tourism Expenditure</i>	<i>Residential Recreational Expenditure</i>	<i>Total</i>
Food and drinks	\$55,765,248.00	\$2,401,619.00	\$58,166,867.00
Fuel and groceries	\$25,112,320.00	\$3,602,428.50	\$28,714,748.50
Bicycle repair and maintenance shops	\$0.00	\$327,493.50	\$327,493.50
Entertainment	\$0.00	\$545,822.50	\$545,822.50
Lodging	61,965,312.00	\$1,528,303.00	\$63,493,615.00
Government revenue	\$0.00	\$654,987.00	\$654,987.00
Registration fees	\$602,113.75	\$218,329.00	\$820,442.75
Other	\$0.00	\$1,637,467.50	\$1,637,467.50
Total	\$143,444,993.75	\$10,916,450.00	\$154,361,443.75

The total values for each category were entered into IMPLAN as industry outputs for the selected region of the State of Nebraska as a whole. IMPLAN then calculated the different economic impacts of the combined expenses in all categories.

In order to create the three economic impact scenarios, the values in Table 3.7 were used as the realistic scenario while the bicycling tourism expenditure was estimated considering half the average length of stay to generate the critical scenario (see Table 3.8) and twice the average length of stay to generate the optimal scenario (see Table 3.9).

<i>Category</i>	<i>Bicycling Tourism Expenditure</i>	<i>Residential Recreational Expenditure</i>	<i>Total</i>
Food and drinks	\$27,882,624.00	\$2,401,619.00	\$30,284,243.00
Fuel and groceries	\$12,556,160.00	\$3,602,428.50	\$16,158,588.50
Bicycle repair and maintenance shops	\$0.00	\$327,493.50	\$327,493.50
Entertainment	\$0.00	\$545,822.50	\$545,822.50
Lodging	\$30,982,656.00	\$1,528,303.00	\$32,510,959.00
Government revenue	\$0.00	\$654,987.00	\$654,987.00
Registration fees	\$602,113.75	\$218,329.00	\$820,442.75
Other	\$0.00	\$1,637,467.50	\$1,637,467.50
Total	\$72,023,553.75	\$10,916,450.00	\$82,940,003.75

Table 3.9: Optimal Total Recreational Bicycling Expenditure by Category			
<i>Category</i>	<i>Bicycling Tourism Expenditure</i>	<i>Residential Recreational Expenditure</i>	<i>Total</i>
Food and drinks	\$111,530,496.00	\$2,401,619.00	\$113,932,115.00
Fuel and groceries	\$50,224,640.00	\$3,602,428.50	\$53,827,068.50
Bicycle repair and maintenance shops	\$0.00	\$327,493.50	\$327,493.50
Entertainment	\$0.00	\$545,822.50	\$545,822.50
Lodging	\$123,930,624.00	\$1,528,303.00	\$125,458,927.00
Government revenue	\$0.00	\$654,987.00	\$654,987.00
Registration fees	\$602,113.75	\$218,329.00	\$820,442.75
Other	\$0.00	\$1,637,467.50	\$1,637,467.50
Total	\$286,287,873.75	\$10,916,450.00	\$297,204,323.75

FINDINGS

The IMPLAN analysis of expenditures results in the following overall direct, indirect and induced economic impact scenarios for the state:

<i>Impact</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Direct	894	\$23,409,462.56	\$38,026,179.12	\$69,096,423.79
Indirect	178.94	\$9,319,286.26	\$14,634,070.89	\$27,703,761.96
Induced	162.26	\$7,401,277.16	\$13,709,553.49	\$24,246,419.39
Total	1,235	\$40,130,025.98	\$66,369,803.50	\$121,046,605.14

<i>Impact</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Direct	1,689	\$44,228,452.29	\$72,166,384.98	\$130,769,641.15
Indirect	336	\$17,583,801.43	\$27,617,548.42	\$52,150,453.91
Induced	306	\$13,974,692.08	\$25,885,980.81	\$45,781,096.04
Total	2,331	\$75,786,945.80	\$125,669,914.21	\$228,701,191.10

<i>Impact</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Direct	3,280	\$85,866,431.75	\$140,446,796.70	\$254,116,075.85
Indirect	651.01	\$34,112,831.78	\$53,584,503.49	\$101,043,837.81
Induced	594.57	\$27,121,521.90	\$50,238,835.46	\$88,850,449.35
Total	4,526	\$147,100,785.43	\$244,270,135.65	\$444,010,363.01

Additionally, the recreational bicycling resulted in the following tax revenue scenarios:

<i>Impact</i>	<i>Sub County</i>	<i>County</i>	<i>State</i>	<i>Federal</i>	<i>Total</i>
Direct	\$3,136,147.73	\$593,887.73	\$2,597,351.57	\$4,829,986.44	\$11,157,373.47
Indirect	\$413,669.56	\$79,731.67	\$496,839.30	\$1,816,706.74	\$2,806,947.27
Induced	\$578,399.26	\$110,225.75	\$569,945.67	\$1,511,576.93	\$2,770,147.61

<i>Impact</i>	<i>Sub County</i>	<i>County</i>	<i>State</i>	<i>Federal</i>	<i>Total</i>
Direct	\$5,970,503.87	\$1,130,549.73	\$4,937,892.70	\$9,142,807.85	\$21,181,754.15
Indirect	\$779,441.04	\$150,236.77	\$936,690.99	\$3,428,814.14	\$5,295,182.94
Induced	\$1,092,144.90	\$208,130.31	\$1,076,170.49	\$2,854,088.23	\$5,230,533.93

<i>Impact</i>	<i>Sub County</i>	<i>County</i>	<i>State</i>	<i>Federal</i>	<i>Total</i>
Direct	\$11,639,216.14	\$2,203,873.73	\$9,618,974.97	\$17,768,450.65	\$41,230,515.49
Indirect	\$1,510,984.02	\$291,246.95	\$1,816,394.38	\$6,653,028.94	\$10,271,654.29
Induced	\$2,119,636.18	\$403,939.44	\$2,088,620.13	\$5,539,110.82	\$10,151,306.57

The economic impacts of recreational bicycling are not evenly distributed and some industries remarkably benefit from this economic activity. In the realistic scenario:

- The lodging or accommodation industry gains a direct revenue of \$63.5 million and a direct value added of \$35.8 million. Additionally, this industry generates 665 jobs as a direct impact of recreational bicycling.
- The dining industry gains a direct revenue of \$58.2 million and a direct value added of \$31.5 million. This industry generates an additional 932 jobs as a direct impact of recreational bicycling.
- The managerial businesses industry gains an indirect revenue of \$6.9 million and an indirect value added of \$4.5 million.
- The property manager and real estate agent industry gains an indirect revenue of \$5.1 million.
- The industry of owner-occupied dwellings gains an induced revenue of \$4.7 million and an induced value added of \$3.7 million.
- Hospitals gain an induced revenue of \$3.1 million, while insurance carriers and physician offices gain an induced revenue of \$1.9 million each.

For the critical and optimal scenarios, these values vary according to the direct expenditure. However, the proportional distribution of benefits throughout different industries remains the same.

DISCUSSION AND CONCLUSION

We have found that recreational bicycling in Nebraska has an overall economic impact of ranging from a critical value of \$121 million to an optimal value of \$444 million in output. Additionally, \$2.8 to \$10.1 million are generated in tax revenue, and between 1,235 and 4,526 jobs as a result of recreational bicycling activity. The most realistic scenario that was calculated in the report results in \$228.7 million in output, \$31.2 million in tax revenue and 2,331 jobs. Recreational bicyclists spend large sums of money in lodging, food and drinks, bike gear, sportswear, convenience items and transportation. These industry sectors, in turn, produce a chain of transactions that benefit many other industries throughout the State. Bicycling events do not only directly benefit host towns, but also any locality along the event routes, and localities that provide labor and other inputs for the production of goods and services consumed by bicyclists.

While these amounts and numbers imply a considerable benefit for the State and the impacted communities, they are significantly smaller than the economic impact of recreational bicycling in other states. Iowa's commuter and recreational bicycling, for example, generated more than \$400 million in economic activity in 2011.³⁶ As previously discussed in Chapter 2, the conditions of Nebraska's bicycle infrastructure are often cited by event organizers as a challenge to spur growth in the State's bicycle tourism industry. This raises the question of how can Nebraska promote the growth of the recreational bicycling industry.

The prior discussion in Chapter 2 pointed out to the opinions of bicycle event organizers in regards to the factors that hinder the growth of the industry, two of which can be considered the most relevant: (1) bike infrastructure, and (2) awareness. The first requirement for having thriving bicycling activity is possessing adequate spaces for riding bicycles, thus, an investment in road improvements that allow sufficient space and features to keep cyclists safe is indispensable to develop a strong bicycle tourism industry. Tourism, like any other industry, presents competition. There are other states that possess the same natural qualities as Nebraska for riding a bike, and thus, the State needs to develop and maintain exceptional trails and bike routes along its roads in order to achieve a competitive advantage in the national and international bicycle tourism market. Nonetheless, providing an outstanding environment for a recreational activity on its own is insufficient to attract tourists. Tourists and users must be aware of the existence of this infrastructure. Hence, the deliberate promotion of Nebraska as a bicycle tourism destination is necessary to exploit any investment in infrastructure to the fullest.

³⁶ Flusche, Darren. Bicycling Means Business: The Economic Benefits of Bicycle Infrastructure. Advocacy Advance. Accessed October 5, 2020. https://bikeleague.org/sites/default/files/Bicycling_and_the_Economy-Econ_Impact_Studies_web.pdf

CHAPTER 4: CONCLUSIONS AND IMPLICATIONS

ECONOMIC IMPACTS FOR THE STATE AND LOCAL ECONOMIES

The research effort combined case studies and site visits with economic impact analyses identifying direct, indirect, and induced impacts of recreational and tourist bicycling at the local and state level. The case studies detailed in Chapter 2 range from well-attended and highly organized bicycling events, to ad-hoc weekly “fun rides” around the state. These events, regardless of scale, have significant measurable economic impacts on the local and state economies. Key findings of this research are:

- Organized bicycle tourism events alone attract almost 20,000 participants per year.
- Bicycle tourism generates anywhere between \$82.9 and \$297.2 million in direct user expenditure within the State of Nebraska, and most likely approximately \$143 million.
- Residential recreational bicycling generates an additional \$10 million in user expenditure. Thus, the Nebraskan recreational bicycling industry is estimated to account for a total of \$153 million.
- This expenditure, in turn, leads to a direct impact of more than \$130 million in output, an indirect impact of \$43 million, and an induced impact of \$45 million. That is, a total impact of more than \$228 million in output.
- Additionally, these expenditures lead to the creation of 2,331 jobs in Nebraska.
- The economic impact of recreational bicycling also generates more than \$31 million in tax revenue, \$7 million of which are perceived by the State government, and \$9 million by local governments.

Our state-level analysis indicates that at current levels, tourist-and-recreational bicycling result in an economic impact of \$228.7 million in output, \$31.2 million in tax revenue and 2,331 jobs. To put the estimated \$228.7 million economic impact for the state of Nebraska in context, similar studies have estimated annual state-level economic impacts from across the US. Maine experiences approximately \$66 million in economic impacts annually, Wisconsin gains an estimated \$535 million annually, and Colorado is estimated to benefit from an additional \$700 million annually from bicycle tourism; and in Iowa, annual revenues from a single event (RAGBRAI), have been estimated at \$350 million.³⁷ Taken together, we see that two neighboring states are enjoying dramatically-higher economic benefits from bicycling than the state of Nebraska. Comparing our findings to similar studies adds credibility to the impact analysis, but more importantly, suggests untapped economic opportunities for the State as well as for smaller communities across Nebraska.

The economic impacts of recreational bicycling and bicycle tourism are significant at the state level, but may also serve as a critical “economic lifeline” to rural communities that host events, or benefit from pass-through event traffic. For rural communities that host events, even a single annual event can dramatically improve the local economy. For example, the Robidoux Quick and Dirty generates a total output of \$191,521 and \$8,369 in taxes for Scotts Bluff County and the City of Gering in a single day. For small towns that are near larger population centers, ad-hoc weekly rides that stop for snacks or for

³⁷ Economic impacts reported in studies available from: <https://peopleforbikes.org/our-work/statistics/statistics-category/?cat=economic-statistics>

meals and drinks appear to be reshaping local economies by supporting locally-owned businesses. The Nacho Ride from Lincoln to Eagle brings hundreds of customers to the latter. Nacho Riders no longer fit in one establishment and have started to generate revenue for more restaurants and bars in this small town.

Economic benefits from bicycling, at both the local and state level, may also be particularly resilient to the COVID-19 crisis. Bicycling is an outdoor activity that allows for easy social-distancing. While some events have been cancelled or postponed, others are experimenting with “virtual events” in which participants log their mileage and routes using apps and compete virtually. The hospitality industry that caters to bicycling events is already adapting to increased cleaning, outdoor food and beverage service, and to-go options. These are low-cost options for existing small Nebraska businesses to adapt to the pandemic and continue to experience the economic benefits of bicycling. Obviously the future and lasting impacts of the COVID-19 pandemic are unknown, but bicycling is likely to remain one of the few safe and healthy activities available that does not require relatively little adaptation to continue.

IMPLICATIONS FOR NDOT OPERATIONS AND PLANNING

The interviews and case studies that were conducted as part of this research show that public policy and the everyday operations of governmental entities have an impact on the development of bicycle tourism and recreational bicycling in general. Aspects such as the condition and safety of routes used by cyclists greatly affect the attractiveness of a State as a recreational bicycling destination.

The Nebraska Department of Transportation (NDOT) is responsible for the maintenance of roads that host some of the largest bicycle races in the state. The availability of shoulders that are well-maintained is a key factor that determines the viability of a route to be used for road races. Additional safety features such as rumble strips protect cyclists from inattentive drivers. Some event organizers also reported having difficulties in keeping defining routes, as the road maintenance schedule did not consider the increase in bicycle activity during the event dates, often creating a conflict and forcing the organizer to modify the route.

In a similar manner, some bicycle events, although off-road or mostly on trails, intersect with roads with vehicular traffic. The lack of safe street crossings for cyclists can deter recreational bicycling activity in a particular locality, and thus, it is important for local and State governments to invest in such infrastructure in order to promote recreational bicycling.

Furthermore, the government’s role in collecting data to inform public policy is critical to improve the decision-making processes that could lead to beneficial changes for the bicycle tourism industry. States that perceive significant revenue and benefits from bicycling events and culture have made an effort to obtain data on bicycle counts, bicycle safety and accidents. In order to create safer bike trails and race routes, local and state authorities need to know where users are at risk and which investments will have the greatest impact on safety, and subsequently, on promoting bicycling activity.

The following subjects present research opportunities that would provide NDOT with valuable information for decision-making in regards to bicycle tourism:

- A study on the expenses incurred by local road authorities in order to host bicycle tourism events, covering direct costs such as traffic control and indirect costs such as increased liabilities. Such a study, in combination with this report, would serve as the basis for a cost-benefit analysis of bicycle tourism in the State of Nebraska.
- An analysis of the ways in which local road authorities in other states cover such expenditures. This analysis could cover reimbursement practices and the attitude of event organizers towards those practices.
- A comparative study of the recreational bicycling industry and other industries that employ public roads to host recreational races.

Another need that was highlighted by event organizers was the lack of streamlined process that informs the pertinent NDOT and local governments of bicycle events in their road network. Improved communications between road authorities and event organizers would allow the corresponding officials to plan ahead to prevent accidents and coordinate road maintenance operations, ultimately leading to economic benefits for the State and the communities that host these events.

Although not within the scope of this report, an issue that is transcendental to NDOT in regards to recreational bicycling is that most of the taxes generated by bicycling events do not result in revenue for NDOT. Tax revenue from these events ends up mostly in the State's general fund, with the gas tax being the sole source of revenue for NDOT. This raises the question of whether the allocation of taxes in Nebraska is as efficient and fair as needed in order to spur the economic development of new growing industries.