

# Nature-Based Recreation: Understanding Campsite Reservations in National Parks

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# 1. Introduction

National parks in the United States hosted more than 330 million visits in 2017, coming close to the record-setting number in 2016, the National Park Service's 100th anniversary year. The increasing number of people enjoying “America's best idea”—the description Wallace Stegner gave to the parks and Ken Burns used as the title for his 2009 PBS documentary—is a sign of the considerable value the parks provide. However, the large number of visitors has also led to serious overcrowding in some parks during the peak summer season and associated wear and tear on hiking trails, campgrounds, and other park facilities. Moreover, many worry that the park experience may be diminishing as visitors face lengthy waits at park entrance stations, vehicle parking shortages, and congestion on trails.

The National Park Service has studied some options for alleviating congestion in the most crowded parks, including use of a reservation system for park entrance, banning private vehicles, using buses to transport people into the park (a system already in place in a few parks), and even using reservations for access to certain hiking trails. The Park Service has also used information and marketing campaigns to encourage visitors to try less-crowded parks and plan their visits for off-peak seasons. Using prices to manage congestion has been decidedly unpopular with the American public, however. In early 2018, Secretary of the Interior Ryan Zinke proposed increasing entrance fees at 17 of the most heavily visited parks from \$25 to \$70, mainly to raise revenues for the Park Service's \$11.6 billion deferred maintenance backlog, but the idea was abandoned after public comments were overwhelmingly negative. Instead, smaller increases were instituted at a handful of parks.

Photo evidence on overcrowding exists—long lines at entrance stations, large numbers of people at iconic sites such as the Old Faithful geyser in Yellowstone, congestion on trails in Zion and other parks—and numerous news stories have documented individual problems, but detailed statistics on the extent of the problem across parks and by season is lacking, as is basic information about who is using the parks, when they are using them, how long they are staying, and other information that would help in devising solutions to park overcrowding. The Park Service counts the number of visitors and conducts occasional surveys at individual parks but does not regularly collect information across the park system about who is using the parks, where they came from, how long they stayed, and other potentially useful information.

Some of this information on park use is available, however, from the US government's website for making reservations for various activities on federal lands, Recreation.gov. Through this website, park visitors (and visitors to other federal lands, such as national forests) can make campsite reservations, obtain wilderness permits, and reserve several other activities. The campsite reservation data are particularly rich and provide a window into nature-based use of national parks.

In this report, we analyze 1.5 million national park campsite reservations made through Recreation.gov over the period 2014–2016. We look at four specific issues: (i) how full campgrounds are in the national parks by individual park, season, year, and day of week; (ii) how far in advance people plan for camping trips to national parks, how far they travel, and how long they stay; (iii) how visitation varies by region and state, specifically looking at the role campground availability and park proximity play in camping visits; and (iv) using information at the zip code level, how the distribution of income of campers in national parks compares with that of the nation as a whole.

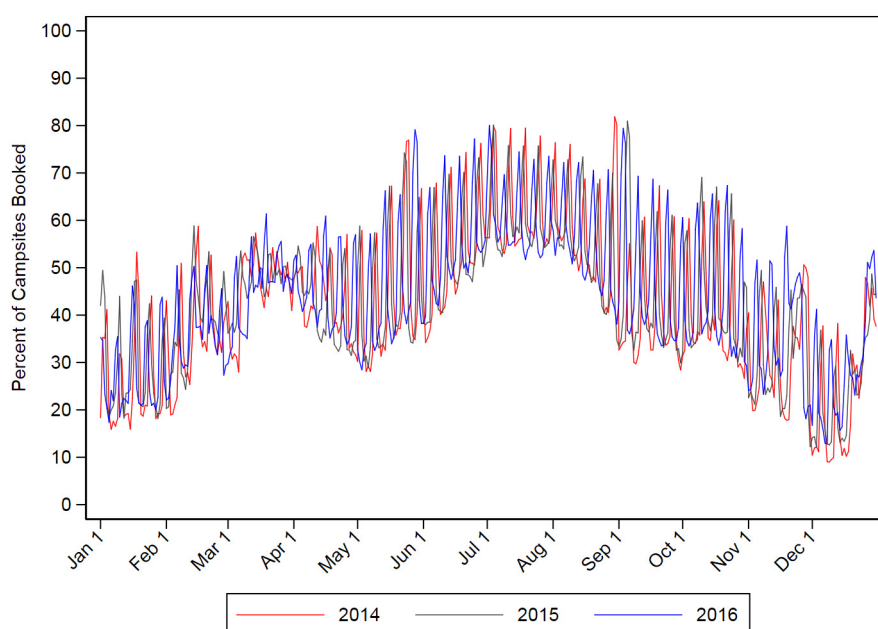
Our analysis only begins to make use of this rich data source, but we are able to draw some initial conclusions about camping visits to national parks.

- Reservable campgrounds (via Recreation.gov) at most of the parks we analyze are filled to capacity during the peak summer season. Many of the parks near centers of population are filled to capacity on weekends in the spring and fall shoulder seasons. Thus, our analysis supports the general understanding that national parks are filled to the brim.
- Most people are making campsite reservations far in advance—typically, six months in advance, the earliest one can make a reservation in most parks. Interestingly, though, we see a significant number of cancellations and rebookings at the last minute, which we attribute, at least in part, to the very small financial penalty for cancelling a reservation. One relatively simple way for the Park Service to generate more money for the parks may be to change this practice.
- Camping visits tend to be short—most campers are staying two nights, and stays beyond four nights are quite rare. In addition, there appears to be no relationship between how far people travel to get to a park and how long they stay. We find that the vast majority of camping trips are within 500 miles of where people live.
- The majority of campers come from states that have national parks, and we find that national park proximity is correlated strongly with camping frequency. In combination with the relatively short stays, we believe that this result says something about the value of easy access to nature and how important it may be to have parks close to where people live.
- Campers in national parks come from zip codes with median incomes slightly above the median for the US population as a whole, though not markedly different. These findings suggest that any proposals to change fee structures should consider carefully both efficiency and equity issues.

## 2. How Full Are National Park Campgrounds?

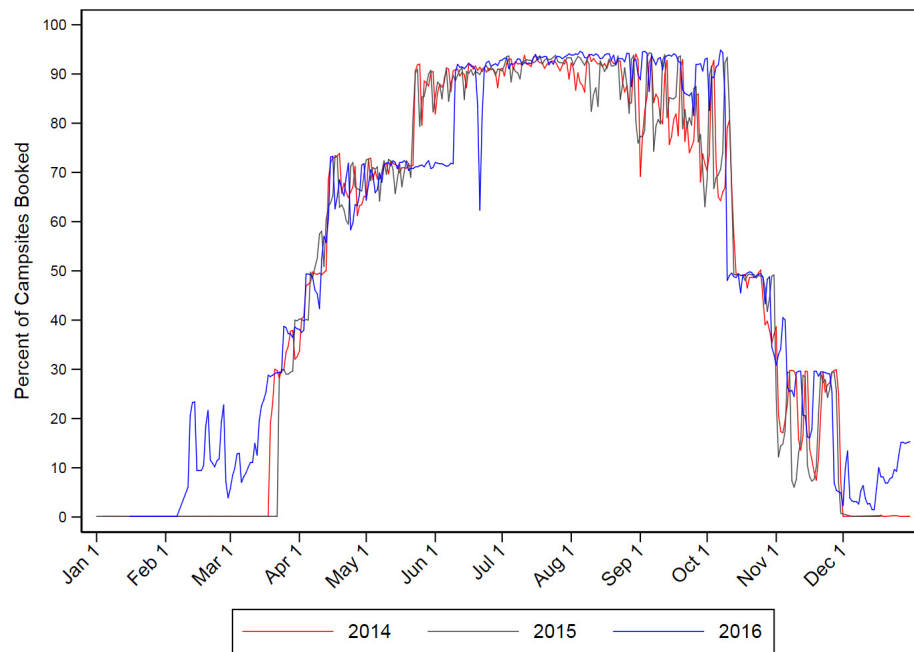
Figure 1 shows the average number of campsites in the Recreation.gov system that are booked as a percentage of all reservable campsites in the system by day of the year for three years—2014, 2015, and 2016. (Although most parks are in the website system, a few are missing, including Yellowstone and Grand Teton national parks.) The cyclical pattern within each month is due to higher visitation during the weekends than on weekdays; in addition, we can see that holiday weekends—namely Memorial Day in late May and Labor Day in early September—also have spikes in visitation. There also is a clear seasonal effect: on average, 20 to 40 percent of campsites are being used in the winter months, 40 to 60 percent during spring and fall, and 60 to 80 percent during the summer. We will see in subsequent figures that this varies even more when one looks at specific parks; it is not uncommon for the most popular parks to be at or near capacity for several months of the year. In July, for example, we see an average capacity utilization of 61 percent, but the standard deviation is 33 percent, which speaks to the wide variation in the extent of crowding.

**Figure 1. Campsite Usage in National Parks, 2014–2016**

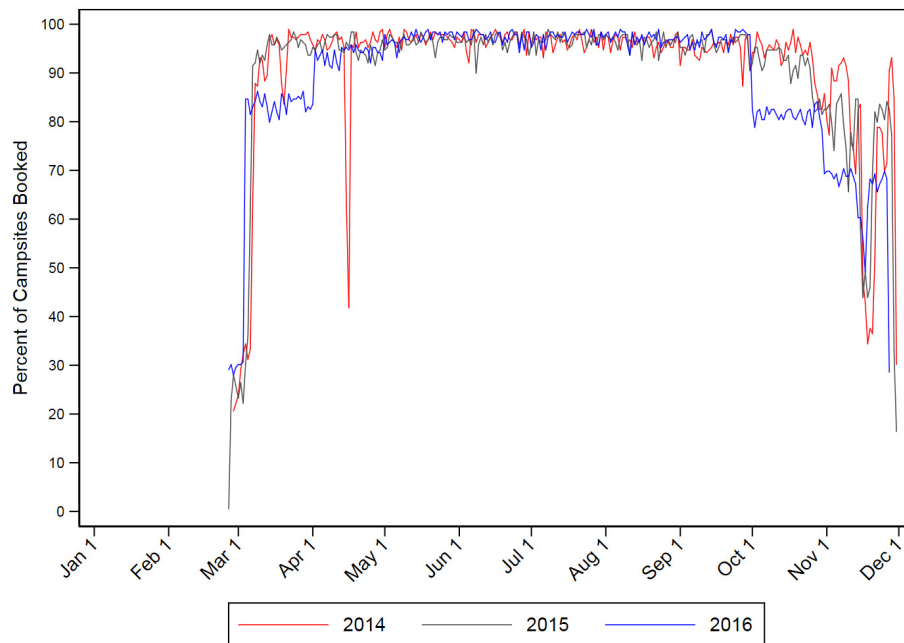


In Figures 2 through 5, we show the same information as Figure 1 for four parks, two in the western United States (Yosemite National Park in California and Zion in Utah) and two in the East (Great Smoky Mountains National Park, which straddles the Tennessee–North Carolina border, and Assateague National Seashore in Maryland). Great Smoky Mountains, Zion, and Yosemite are among the 10 most-visited national parks in the country every year.

**Figure 2. Campsite Usage at Yosemite National Park, 2014–2016**

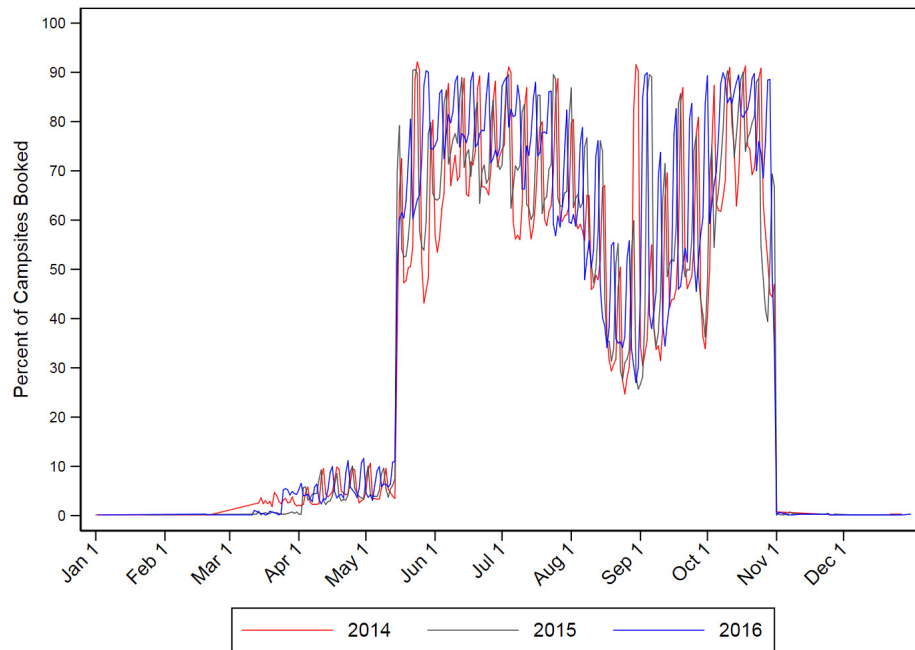


**Figure 3. Campsite Usage at Zion National Park, 2014–2016**

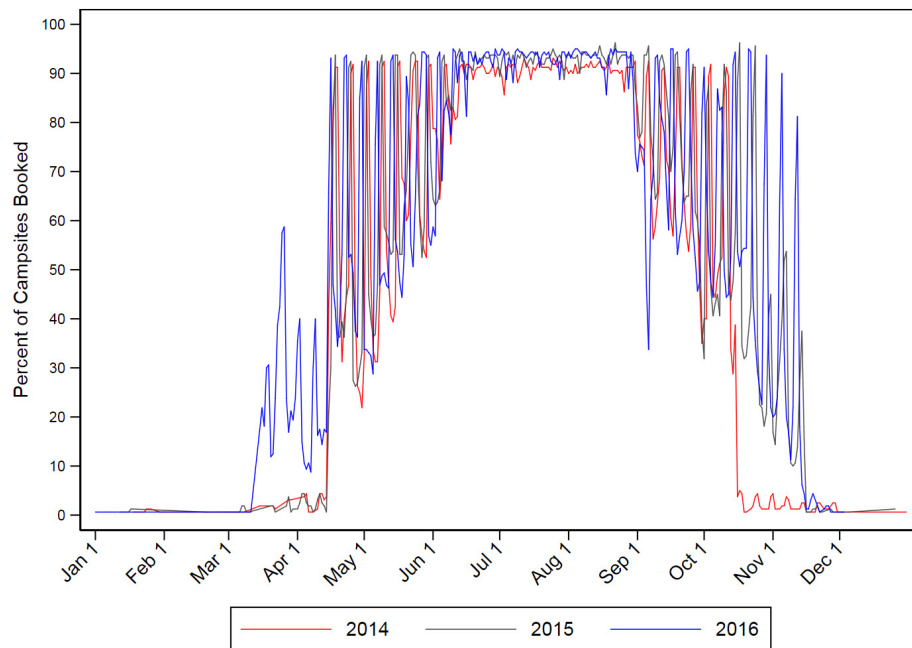




**Figure 4. Campsite Usage at Great Smoky Mountains National Park, 2014–2016**



**Figure 5. Campsite Usage at Assateague National Seashore, 2014–2016**



These figures highlight some of the stark differences in camping behavior across the park system. Although all of the campgrounds are at or near peak capacity during some months of the year, the patterns vary across the parks. Zion's campgrounds are at or near peak capacity for nearly seven months of the year and virtually every day of the week. Yosemite is also near 100 percent utilization but for fewer months, and the months vary slightly across the three years shown in the graph—a phenomenon likely driven by differences in weather across the three years. Assateague shows two interesting patterns: first, virtually all of the campsites are booked every day of the summer, and second, though virtually all are booked on the weekends in the spring and fall, weekday usage is significantly lower. Assateague is located 130–140 miles from Baltimore and Washington, DC. Great Smoky Mountains' campgrounds are at slightly less than full capacity most of the year and see more cyclical movements within the month—like Assateague, showing more weekend usage relative to weekdays. In addition, visitation drops slightly in the month of August, when high temperatures and humidity might make camping less appealing compared with other months.

What do we take away from these findings? Our main observation is the heterogeneity in patterns of use across parks, and thus there is likely no one-size-fits-all solution to reduce congestion and overcrowding. For example, for parks like the Great Smoky Mountains, creating incentives for weekday visits might reduce demand on the busiest weekends. However, this strategy would be less successful in Zion, where demand is consistent across all days of the week.

Although our data set includes only camping reservations, we think they are a good proxy for visitation in general. The most popular parks for camping closely align with the National Park Service's rankings of popular parks by overall visitation (Table 1).

**Table 1. Comparing Visitation with Campsite Reservations, 2014–2016**

Visitation for 20 Most Popular Destinations (National Park Service data)			Campsite Reservations for 20 Most Popular Destinations (Recreation.gov data)		
		Visits			Camping Nights
1	Great Smoky Mountains National Park	32,124,736	1	Yosemite National Park	423,966
2	Grand Canyon National Park	16,247,318	2	Grand Canyon National Park	268,523
3	Cape Cod National Seashore*	13,622,766	3	Great Smoky Mountains National Park	218,077
4	Gulf Islands National Seashore	13,203,432	4	Gulf Islands National Seashore	178,238
5	Yosemite National Park	13,061,727	5	Zion National Park	137,900
6	Rocky Mountain National Park	12,108,252	6	Rocky Mountain National Park	130,769
7	Yellowstone National Park*	11,868,371	7	Sequoia and Kings Canyon National Parks	115,827
8	Zion National Park	11,133,669	8	Shenandoah National Park	81,881
9	Olympic National Park	9,897,854	9	Glacier National Park	78,914
10	Grand Teton National Park*	9,211,389	10	Assateague Island National Seashore	71,547
11	Acadia National Park	8,677,706	11	Joshua Tree National Park	71,163
12	Glacier National Park	7,651,265	12	Acadia National Park	61,156
13	Point Reyes National Seashore	7,373,492	13	Lassen Volcanic National Park	50,528

14	Cuyahoga Valley National Park*	6,897,851	14	Mount Rainier National Park	50,309
15	Cape Hatteras National Seashore	6,839,696	15	Death Valley National Park	49,628
16	Assateague Island National Seashore	6,714,108	16	Olympic National Park	47,929
17	Joshua Tree National Park	6,120,946	17	Pinnacles National Park	41,441
18	Bryce Canyon National Park	5,546,655	18	Arches National Park	34,693
19	Hawaii Volcanoes National Park*	5,413,245	19	Point Reyes National Seashore	31,055
20	Canaveral National Seashore	4,770,923	20	Big Bend National Park	23,105

\*These parks either do not have campgrounds or do not offer campsite reservations via Recreation.gov.

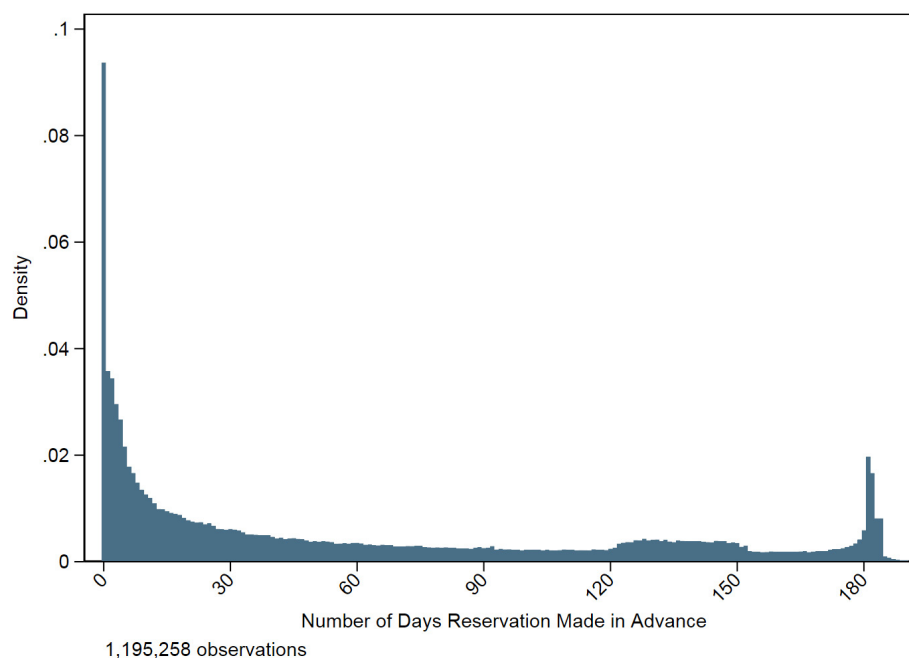
Note: Figures are totals for the three-year period, 2014-2016. Visitation data available at National Park Service Visitor Use Statistics website: <https://irma.nps.gov/Stats/>.

### 3. How Far in Advance Are National Park Campsite Reservations Made?

The Recreation.gov reservation system allows bookings to be made at most parks starting six months in advance of the visit. Yosemite National Park is an exception; campsites there go “on sale” in batches four to five months in advance. Yosemite is an extremely popular destination, and it is not uncommon for hopeful campers to log on to Recreation.gov precisely at 10 a.m. EST on the first available date to secure a site. But as the data show, Yosemite is not the only park that experiences this phenomenon. Figure 6 shows the distribution of days in advance that reservations are made across all parks. A clear spike comes at 120 to 150 days (Yosemite) and at 180 days (most other parks).

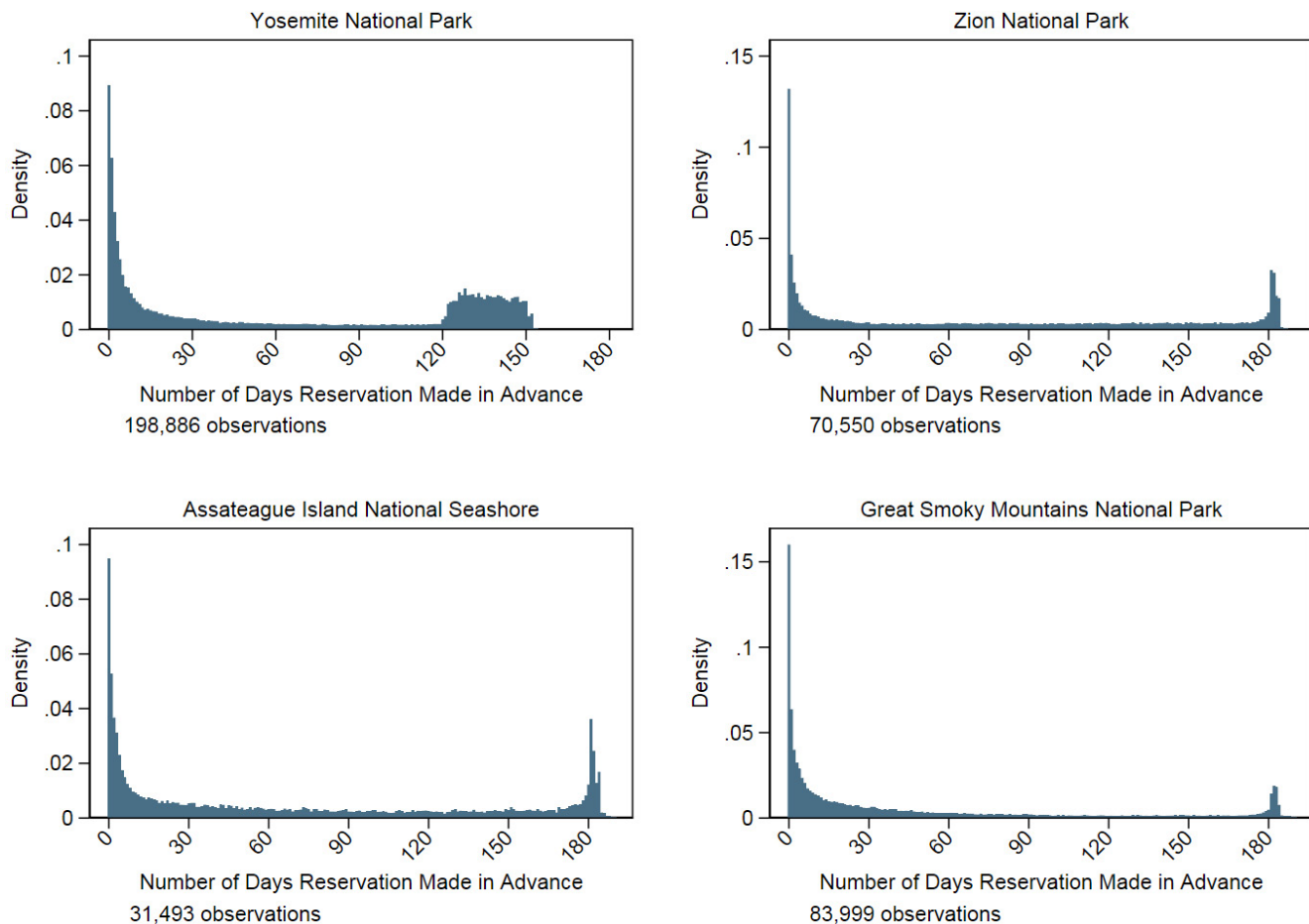
However, a significant number of reservations are booked less than 30 days prior to the start of a camping trip, and we see a spike at one day ahead. These patterns are observed because many reservations made much earlier are canceled and then picked up at a later date by someone else. According to the Recreation.gov cancellation policy, cancellations made more than 24 hours prior to the start of a trip receive a full refund less only a \$10 service fee and a \$10 cancellation fee; furthermore, modifying the dates of a reservation costs just \$10. These fairly small penalties for even a very last minute cancellation make the patterns not surprising.

**Figure 6. Days in Advance That National Park Campsite Reservations Are Made, 2014–2016**



We described above significant heterogeneity in campsite usage across parks, but the advance booking behavior is remarkably similar across parks. We highlight this similarity in Figure 7 by showing advance booking distributions for the same four parks we focused on above—Yosemite, Zion, Great Smoky Mountains, and Assateague.

**Figure 7. Days in Advance That National Park Campsite Reservations Are Made, 2014–2016:  
Yosemite, Zion, Great Smoky Mountains, and Assateague**



We draw two conclusions from the timing of reservations for campsites in national parks. First, the large number of reservations made as soon as the reservation window opens is another indication of the popularity of the parks. For a significant number of people, securing a site far in advance is clearly valuable. This implies that broadening the use of reservations to include simple entry into a park might have merit. Second, the system currently seems to be operating somewhat inefficiently. Some people are reserving early to preserve the option of visiting but then cancelling, freeing up the campsites for last-minute planners. Without further analysis, it is unclear how inefficient this is: are the people who place the

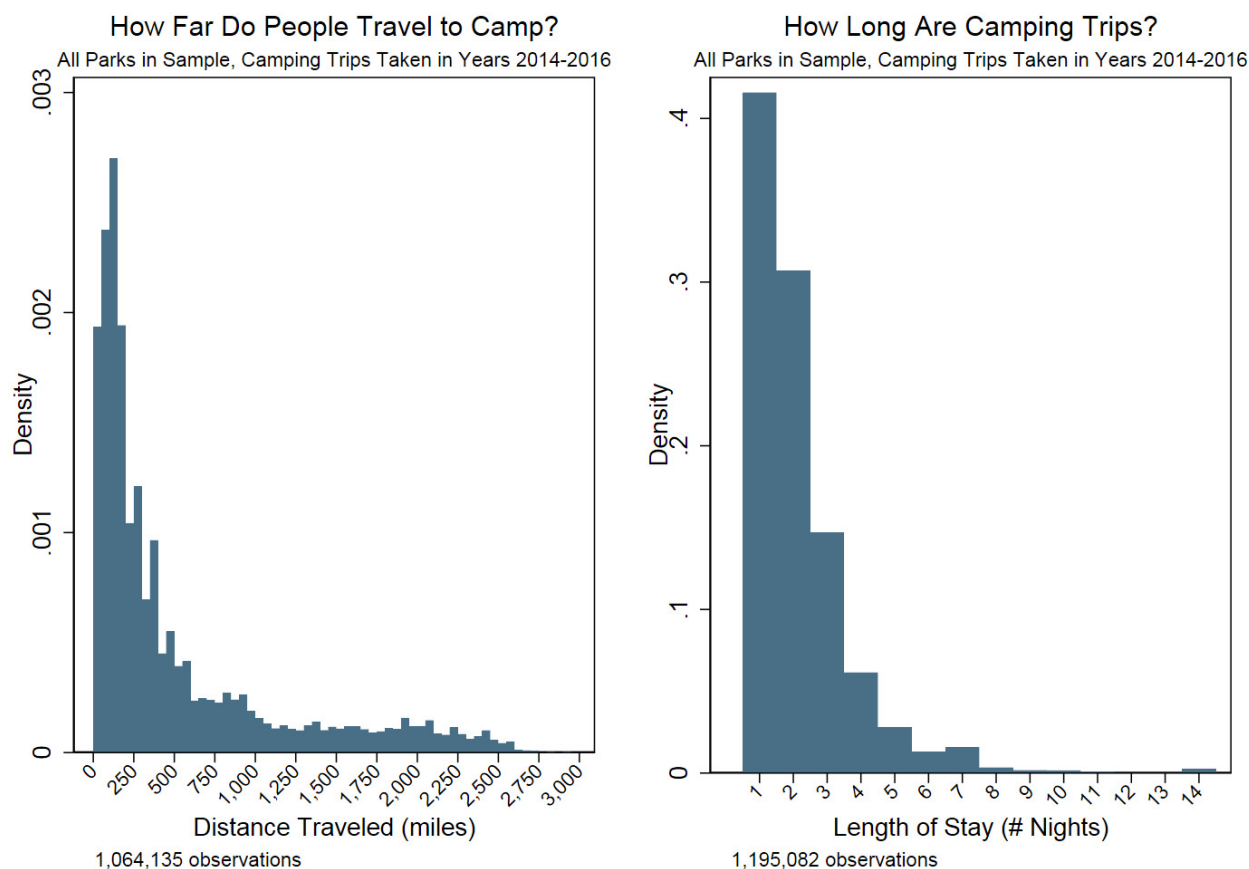
greatest value on a camping trip actually getting to camp? More research is needed to answer this question. But at a minimum, it appears that the cancellation policy could be leaving money on the table. Increasing the penalty for cancellation could generate some much-needed money for the Park Service.

It is important to point out that in 2018, the average price for one night of tent camping in the four parks highlighted here is only \$23. This is probably below the average camper's willingness to pay, at least at some parks on some days. Because of concerns about equity, the Park Service is reluctant to fully commit to pricing as a way of rationing use of the parks. However, use of a campsite has to be rationed in some way. More research could shed light on how to balance equity and efficiency concerns and make better use of the reservation system.

## 4. Distance Traveled and Duration of Stay in National Park Campgrounds

Everyone making a reservation on the Recreation.gov website enters a billing zip code. We assume those zip codes are the location of residence and use them to calculate distances traveled to camp in national parks. Figure 8 shows the distributions of distance traveled and duration of stay across all campsite reservations during the 2014–2016 period. Two things stand out: most campers are coming from less than 500 miles away and most are staying only one or two days; only 7 percent of the reservations during this three-year period are for more than four days.

**Figure 8. Distance Traveled and Duration of Stay for National Park Camping Visits, 2014–2016**



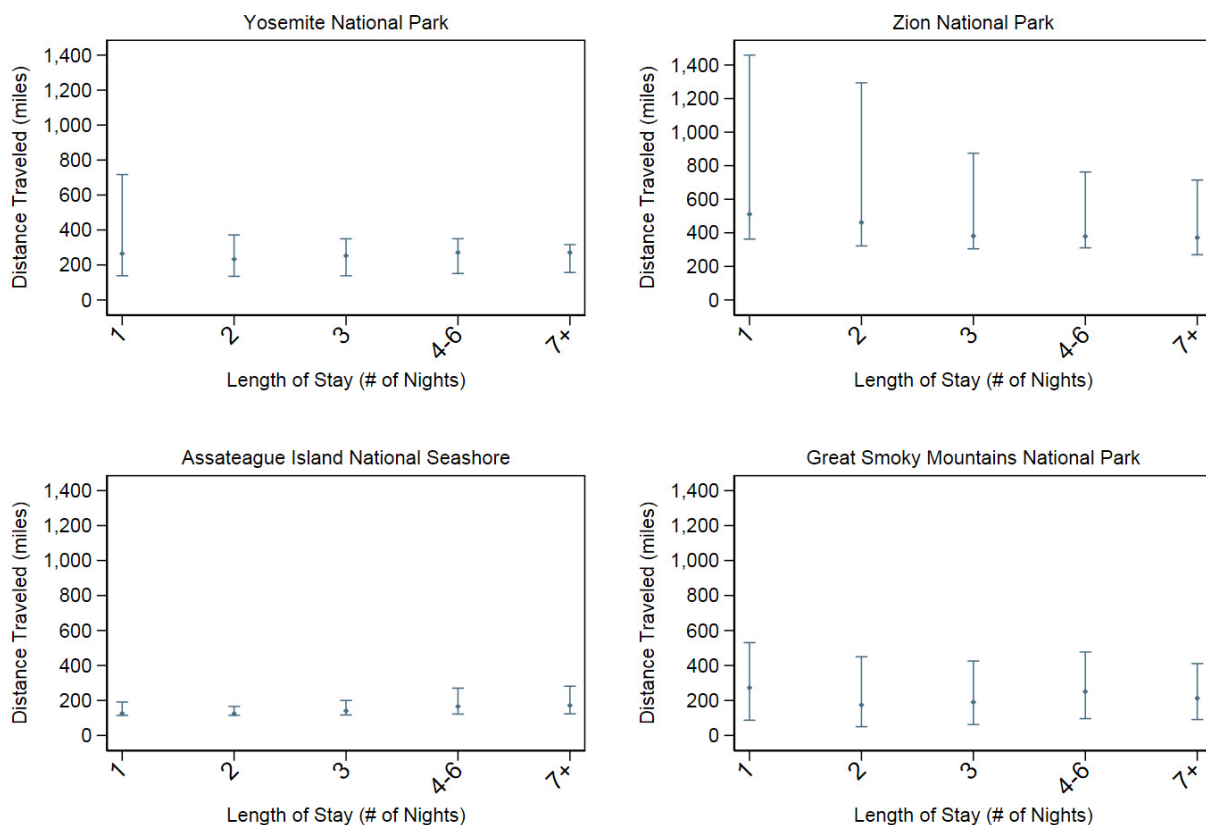
Somewhat surprisingly, Figures 9 and 10 reveal no relationship between distance traveled and duration of stay or between distance traveled and how far in advance a booking was made. Figure 9 shows the median and 25th/75th percentiles for distance traveled by duration of stay for Yosemite, Zion, Great Smoky Mountains,



and Assateague. We would expect that people coming from farther away would be staying longer, but we see little difference in the median distance traveled for campers staying only one night versus a week or more for any of the four parks. Figure 10 shows the distance traveled by number of days in advance a reservation was made. Although it seems logical that someone making a booking far in advance would be coming from farther away and someone booking at the last minute would live closer to the park, we do not see that pattern. When a booking was made seems to be unrelated to how far away the person lives from the park.

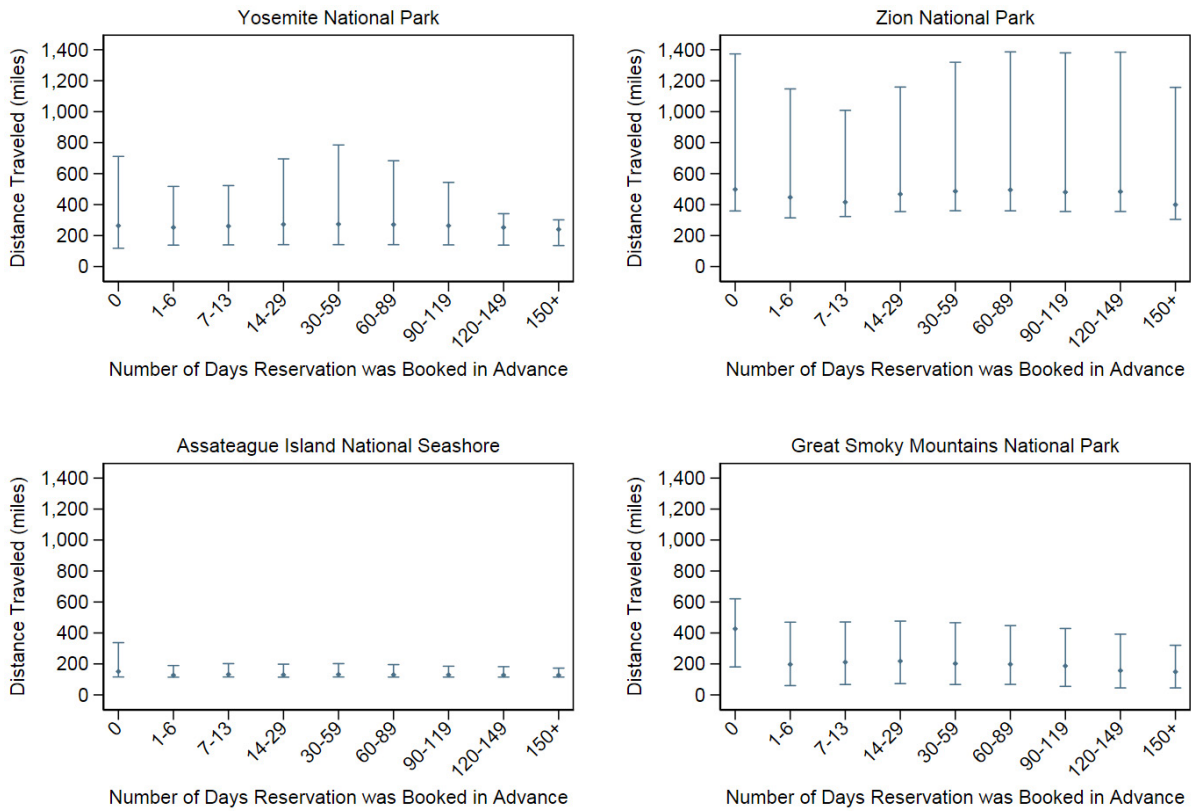
Figures 9 and 10 do reveal that distances traveled vary across the four parks. The two western parks see people coming from greater distances than the two eastern parks. Fifteen percent of Yosemite campers come from more than 1,000 miles away, versus only 3 to 4 percent of Assateague and Great Smoky Mountains campers.

**Figure 9. Duration of Stay and Distance Traveled for Campers in Yosemite, Assateague, Zion, and Great Smoky Mountains, 2014–2016**



Medians plotted with 25th and 75th percentile bars

**Figure 10. Advance Booking and Distance Traveled for Campers in Yosemite, Assateague, Zion, and Great Smoky Mountains, 2014–2016**

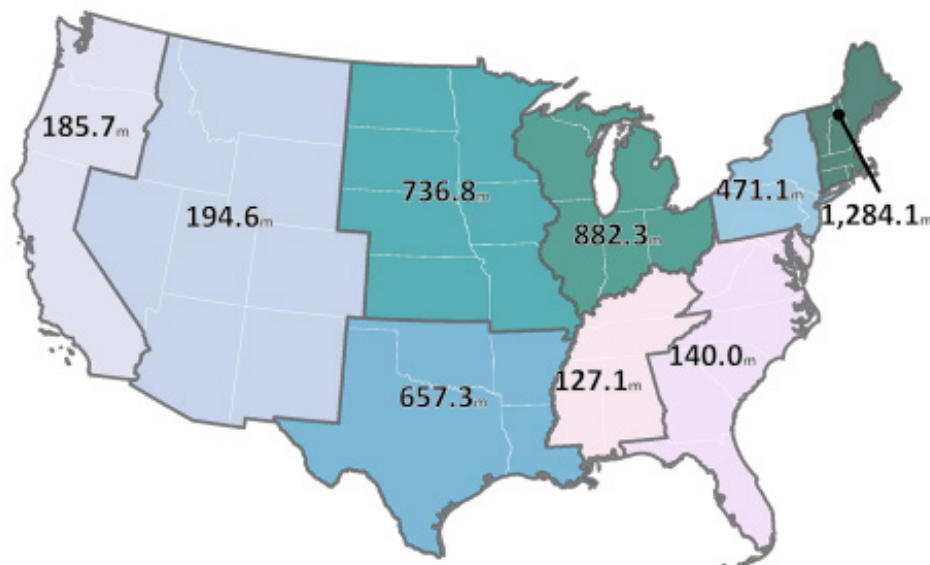


Medians plotted with 25th and 75th percentile bars

## 5. The Importance of Proximity

Assigning campers in our sample to U.S. Census divisions reveals some interesting additional information: people who live in the West (in the lower 48 states) tend to travel shorter distances to camp in a national park than people in the rest of the country. The median distance traveled to camp in a national park, across all the reservations we analyze, is 250 miles, but as Figure 11 shows, it varies across the country. The median distance for people who live in New England is almost 1,300 miles, whereas the median distance in the Pacific division (California, Oregon, and Washington) is only 186 miles. Sixty percent of New Englanders but only 15 percent of people from the Pacific and Mountain Census divisions traveled more than 500 miles to camp in a national park. These findings may seem obvious: proximity matters. Residents of states like California, Utah, and Colorado have several national park options nearby. People in many other parts of the country have to travel a long way to get to a national park.

**Figure 11. Median Distance Traveled to National Park Campsites, 2014–2016, by Census Division**



Note: Alaska and Hawaii omitted from the calculations. Distances calculated from zip codes reported in Recreation.gov campsite reservation data.

Not only does proximity matter for distance traveled to parks, it also appears to matter for whether someone visits a park at all. Figure 12 shows, adjusting for state population, the average annual number of days camping in national parks by campers' states of residence for the top 25 states in the Recreation.gov data set. Immediately one can see that the top of the list is skewed toward the western United States, where we find most of the country's national parks. For every 1,000 people who live in Colorado, there is an average of 8.3 days of camping in national parks per year; for every 1,000 people in Michigan, there are 2 days of national park camping. It is also no coincidence that the District of Columbia, Maryland, and Tennessee are near the top, given Washington's and Maryland's proximity to Shenandoah National Park and Assateague National Seashore, and Tennessee's proximity to Great Smoky Mountains National Park. Perhaps more interesting are the states that do *not* appear on the top-25 list. For instance, New York—which is third to last in the full rankings (not shown)—has a population more than six times that of Utah, but Utahans camp in national parks at more than five times the rate of New Yorkers. Other large states, such as Pennsylvania, Texas, and Florida, are also conspicuously absent from Figure 12. Obviously, residents of these states may be making use of state parks, national forests, and other camping options, but the data show that they are underrepresented in national park campgrounds and highlight again the importance of proximity and access.

**Figure 12. Average Annual Number of Days in National Park Campsites, by Camper's State of Residence, 2014–2016**

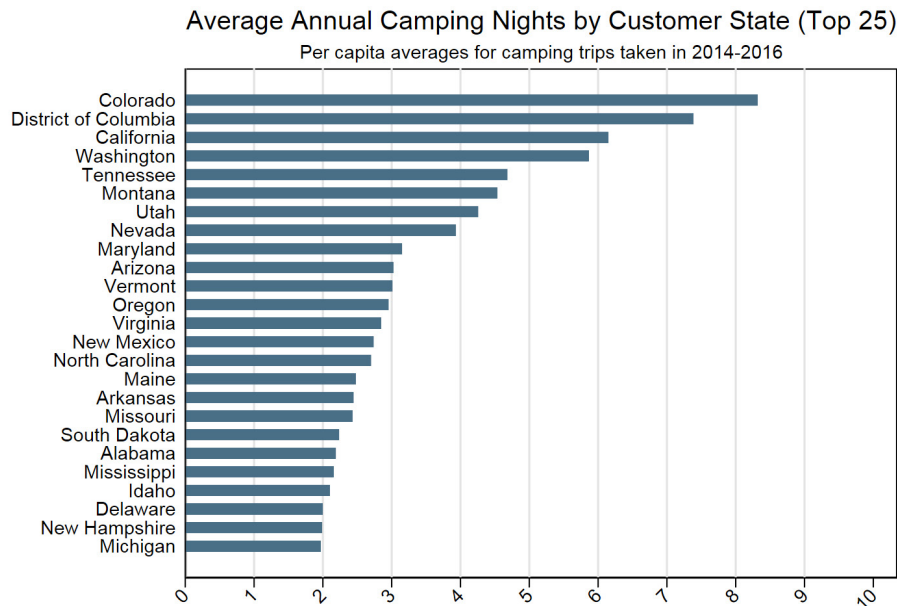
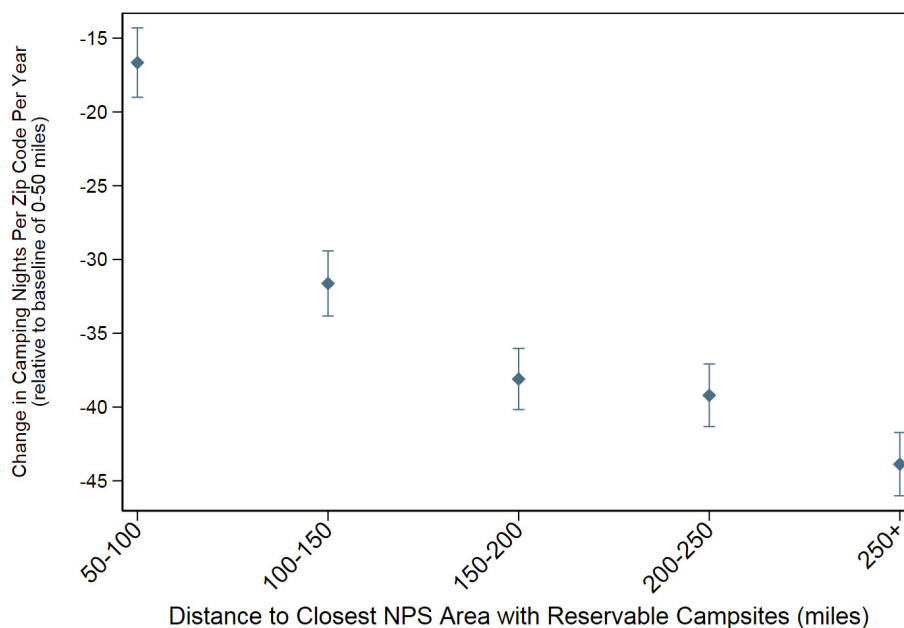


Figure 13 plots the relationship between the distance from each zip code in our sample to the closest National Park Service campground and the camping frequency by people in that zip code. The analysis controlled for population in each zip code and the number of campsites at the closest Park Service site (through a simple linear regression). The vertical axis shows the difference in average number of camping nights per year per zip code for those zip codes within 50 miles compared with five other distance categories (50-100 miles, 100-150 miles, and so forth). The graph reveals a negative association between distance from national parks and camping frequency. Zip codes located between 100 and 150 miles away from a national park, for example, have an average of 32 fewer camping nights per year than zip codes located less than 50 miles away. The average number of camping nights per year in zip codes within 50 miles of a national park is 69; past 50 miles, the estimated number of nights declines by 25 to 65 percent per 50 miles. The results shown in Figure 13 align with those in previous sections, which show that short camping trips and busy weekends are the norm at parks: if people live far away from a national park, weekend trips are less feasible and may even seem like an unattractive option, given the overcrowding and the risk of not getting a site.

**Figure 13. National Park Proximity and Camping Frequency**



Note: The dots represent the mean difference between the number of camping nights for a particular distance (based on zip code of the camper), relative to the <50-mile distance, controlling for the population of the zip code and the number of campsites in the nearest National Park Service site. The error bars represent the 95 percent confidence interval.

Another factor in access to outdoor recreation, in addition to proximity, is supply: how many national park campgrounds are nearby? Figure 14 plots the relationship between number of national park campsites per state and per capita annual

camping nights from our 2014–2016 Recreation.gov sample; we also include a fitted line to the data. Although this figure comes with some important caveats (e.g., certain popular parks—including Yellowstone and Grand Teton—are not in our dataset, which likely affects Wyoming’s location near the graph origin), it still suggests a positive relationship between campsite supply and utilization at the state level.

**Figure 14. Number of Reservable National Park Campsites per State and Number of Camping Night Stays per 1,000 People**

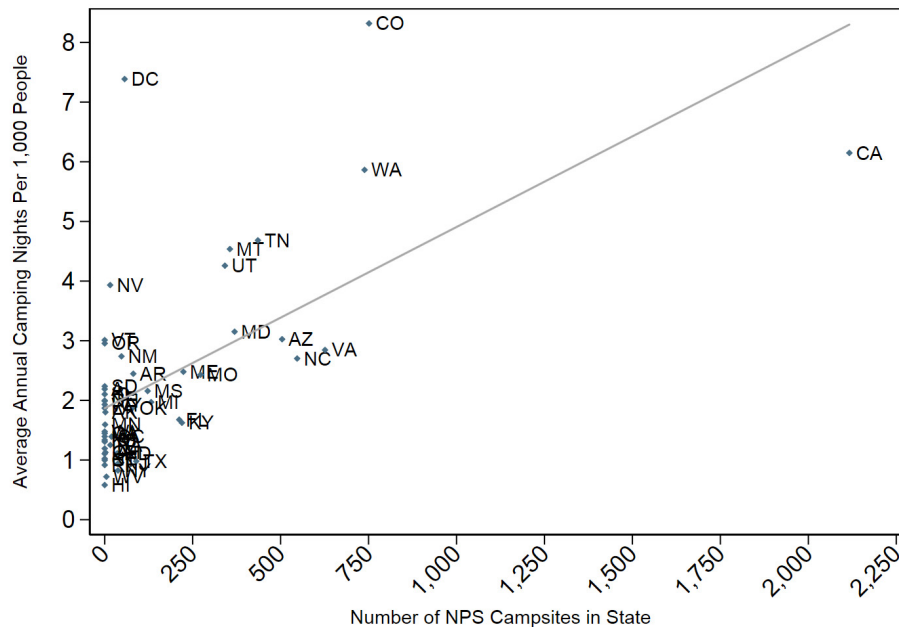


Figure 14 reinforces our point above: proximity matters. People who live in states with very few national park campgrounds make fewer camping trips to national parks. They may have other camping options that we do not analyze here—state parks, national forests, and private campgrounds, for example—but they are not camping in national parks.

It is also important to point out that the relationship shown in Figure 14 may also be a result of sorting. People tend to live in locations that have the amenities that suit their preferences. Thus, the fact that Coloradoans spend the most time camping in national parks of all the states may be driven by the fact that people who value recreation also choose to live in Colorado. Much has been written about “amenity migration” in recent years and population growth trends in counties with an ample supply of public lands and natural amenities. Our data analysis is not positing a causal relationship between national park availability and proximity and the number of camping visits, merely highlighting the patterns we see in the camping data.

## 6. Incomes of Campers in National Parks<sup>1</sup>

Some people are concerned that solutions to reduce crowding in national parks, especially those that may involve changes in fees, may result in inequitable access for individuals with lower incomes. In this section, we investigate whether the Recreation.gov camping data suggest any current inequity based on income. We ask a simple question: does the income distribution of campers in national parks appear to be representative of the United States as a whole?

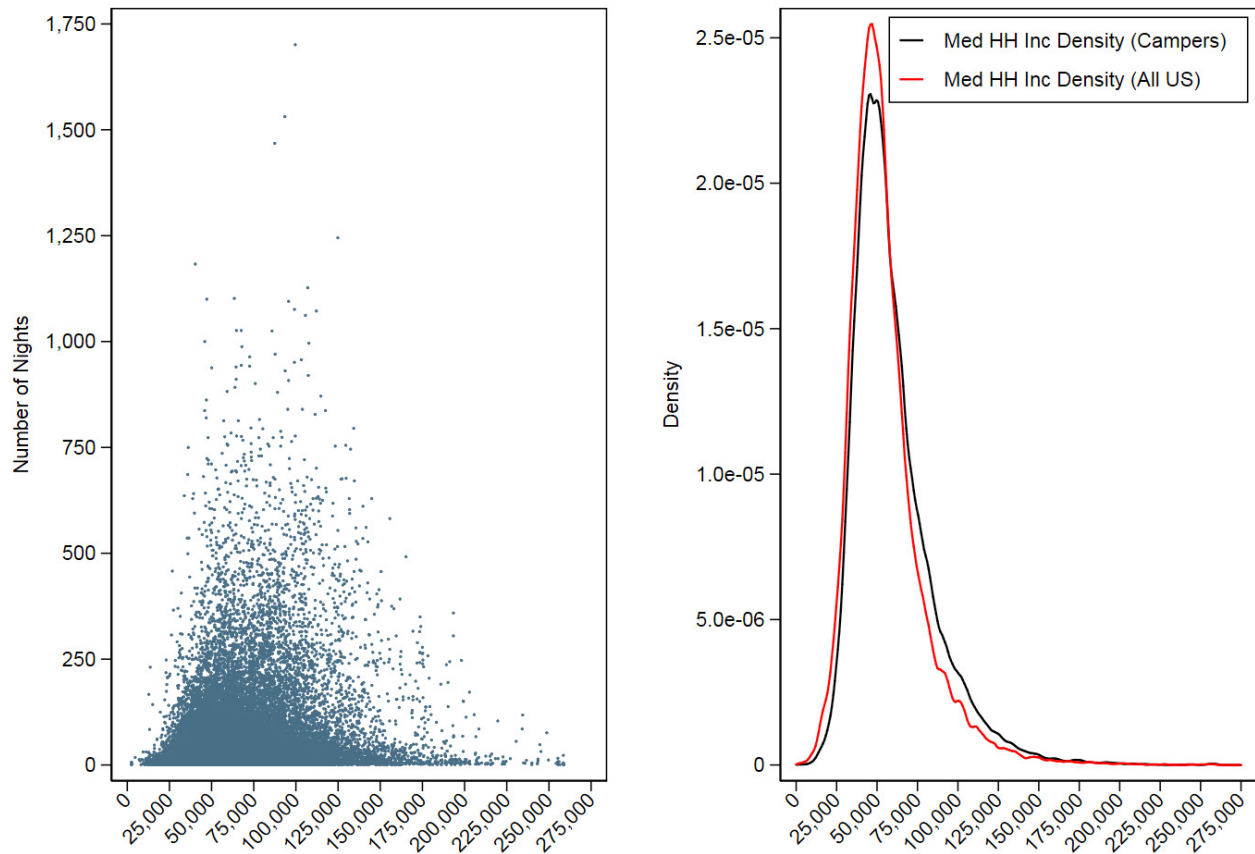
The left-hand graph in Figure 15 plots the number of camping nights reserved over the 2014–2016 period against median household income at the zip code level. Each dot on the graph represents one zip code and year in our data. The right-hand graph shows estimates of the probability density function based on the data (in black) and the density function for household income in the United States as a whole (in red). These curves show the percentage of people at each income level camping in national parks and in the US population. The income distribution of campers is skewed very slightly to the right relative to the income distribution of the country overall, suggesting that higher-income individuals tend to camp in national parks with greater frequency. The median household income of national park campers is \$54,000, while the median income for the US population during this time period was approximately \$50,000. However, the curves are remarkably similar, suggesting that national park campers are fairly similar to the rest of the US population, at least on the basis of income.

Figure 16 uses a similar approach but examines the Gini coefficient for each zip code. A Gini coefficient ranges between zero and one and provides a measure of income inequality: low values, closer to zero, suggest greater equality, and high values, greater inequality. The densities presented in Figure 16 are quite similar to each other—that is, campers tend to live in zip codes with income inequality that looks like the United States as a whole. The average Gini coefficient for the United States is 0.41, and the average from our sample of national park campers is 0.42.

Even though the information on income and inequality is derived from zip code-level statistics, it provides some general information on what national park campers look like compared with the US population. On the one hand, camping is a relatively low cost vacation option. As we mentioned above, the average fee for one night of tent camping at the four national parks in our sample (Yosemite, Assateague, Zion, and Great Smoky Mountains) is only \$23. On this basis, we might have expected the incomes of campers to lie below the US population as a whole. On the other hand, the additional costs of camping—park entry fees, travel costs, and the (one-time) costs of tents and other gear—may be a barrier for low-income households. Indeed, visits to national parks in general (or perhaps any vacation at all) may be out of reach for many low-income households. National park camping may be considered a

“luxury good”—that is, a good for which demand increases more than proportionally with income. Our analysis only begins to look at these questions. If and when the Park Service considers higher fees, gaining a better understanding of these equity issues will be important.

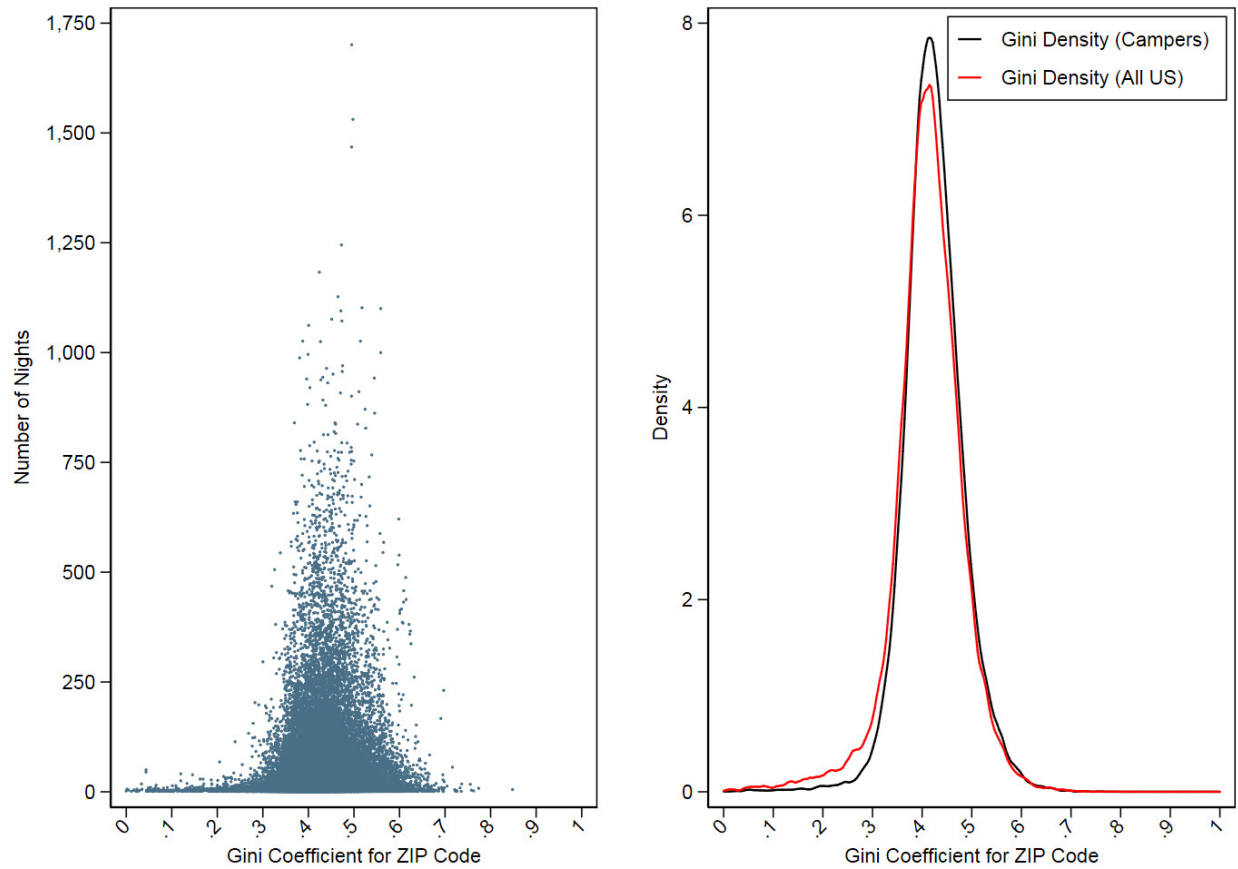
**Figure 15. Median Household Income (by Zip Code) for National Park Campers and for US Population**



Note: Each dot on the left panel represents the total number of camping nights reserved for a given zip code and year from our sample period (2014–2016). On the right panel, the black line estimates the distribution of median household income across all the dots from the left panel. The red line estimates the distribution of median household income for all zip codes in the United States using the average median household income over 2014–2016 for each zip code as an observation. Both density estimates were bounded between \$0 and \$275,000.



**Figure 16. Gini Coefficient (by Zip Code) for National Park Campers and for US Population**



Note: Each dot on the left panel represents the total number of camping nights reserved for a given zip code and year from our sample period (2014–2016). On the right panel, the black line estimates the distribution of Gini coefficients across all the dots from the left panel. The red line estimates the distribution of Gini coefficients for all zip codes in the United States using the average Gini coefficient over 2014–2016 for each zip code as an observation. Both density estimates were bounded between 0 and 1.

## 7. Conclusion

As national parks become increasingly popular, the National Park Service must balance its “open door” policy with the need to provide a quality park experience for visitors and effectively manage its resources for future generations. A first step in this process is gaining a better understanding of current park usage. In this report, we tapped an underutilized source of data on park usage, the campsite reservation data in the government’s online reservation system, Recreation.gov. We used data on 1.5 million reservations to better understand who is using park campgrounds, how far they plan in advance, where they come from, and how long they stay.

Our analysis only scratches the surface of what can be done with these data. Nonetheless, we were able to uncover some interesting findings. First, many campgrounds are full during the peak season and people appear to plan their trips far in advance, making reservations as soon as the system allows (typically six months in advance). However, we see variation across parks, with some parks full to the brim almost every day of the summer and others quite full on weekends but less so on weekdays. This result suggests to us that experimentation with changes in fee structure—more variation in fees across parks and by season and day of the week—is worthwhile. It will be important to understand how fees affect demand. Would campers substitute across parks, go to other sites such as national forests, or choose the same park but visit at a less busy, less costly time? Only experimentation with fee changes and data gathering before and after such changes will provide answers.

Second, we feel that the reservation system itself could probably be improved. The data show that many reservations are made early but then canceled and picked up by others at the last minute. Could an increase in the cancellation penalty be called for? Would this generate more money for the Park Service and more efficiently allocate the campsites? Additionally, relying on reservations is one form of rationing scarce campsites; the extent to which reservations allocate the resource efficiently is ambiguous, and who wins or loses from such a system is unclear.

Third, it appears that proximity matters for camping. Most people visit parks relatively close to where they live and stay only two nights; longer trips are extremely rare. We analyzed the data on national parks only—other camping options such as state parks and national forests might fill the gap for many people—but our findings highlight the importance of having nature-based recreation opportunities close to home. This finding is important information for decisions about new campgrounds.

Finally, although we do not know the socioeconomic characteristics of campers in national parks from the Recreation.gov data, we were able to find out something about their incomes using data at the zip code level. From this, it appears that

national park campers have incomes very slightly above those in the US population, though the two distributions do not differ very much. Given the desire to balance equity and efficiency and to ensure the national parks are available to Americans of all income levels, this suggests that care should be taken with any fee changes. Increases in peak periods should be balanced with lower fees during off-peak, and creative mechanisms for providing free or low-cost access based on ability to pay should be on the table.

## Notes

- 1 Income and Gini coefficient data for this section was sourced at the Zip Code Tabulation Area (ZCTA) level from the US Census American Community Survey via IPUMS (IPUMS NHGIS, University of Minnesota, [www.nhgis.org](http://www.nhgis.org)).

