Measuring the spending of visitors to U.S. national forests over two decades

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Introduction

Understanding the economic connections between U.S. national forests and towns and cities surrounding those forests has been of interest since the establishment of the National Forest System (NFS). Historically, extractive uses, such as timber production and mining, were the primary drivers of local economic activity. With declining national forest timber harvest levels and changes in commodity markets, the economic significance of those activities, especially timber production, has lessened in recent decades. Recreation, and the associated spending of visitors to national forests, is now the primary driver of economic activity from use of national forests in many communities and across the entire NFS.

Understanding the magnitude and characteristics of spending by individuals recreating on national forests is key to describing how recreation use of the NFS affects the economy, both in communities around national forests and nationally. We have been conducting long-term research on recreation visitor spending patterns as part of the Forest Service National Visitor Use Monitoring (NVUM) Program. In this paper, we describe our approach to estimating visitor spending patterns and magnitude and report on the observed stability in spending patterns over time.

Data and Analysis

The Forest Service NVUM Program has the duel goals of quantifying the amount of recreation use on the NFS and describing the characteristics of visitors to the NFS. Visitor characteristics are measured using data from a survey administered by trained interviewers. Days and locations where visitor interviews occur within individual national forests are selected via a stratified random sampling approach as part of NVUM's goal to measure recreation use. Visitor interviews are conducted throughout the calendar year. The NVUM Program rotates through individual administrative units in the NFS over a five-year cycle.

Under NVUM, all contacted individuals who are on the national forest for recreation (as opposed to work, passing through, or some other reason) and who are ending their recreation visit that day are eligible to participate. All interviewees complete a "basic" questionnaire that gathers general information about the recreation visit, the trip away from home, and visitor demographics. Approximately 1/3 of interviewees are also randomly selected to complete a supplemental questionnaire that is used to gather information on their trip expenditures. Visitors are asked to report spending made within 80 kilometers of their recreation destination in 10 expenditure categories associated with their present trip. Visitors are also asked to report their total spending during the entire trip away from home. Spending on durable goods, such as backpacks, boots, trailers, and boats is excluded.

Basic surveys are administered to about 20,000 national forest recreation visitors each year. About 6,000 of those visitors also complete the supplemental questionnaire gathering information on visitor expenditures. Data collected in each year are aggregated across NVUM years so that the most recent data from each NFS unit are represented in the visitor spending dataset. Reported spending is price adjusted to a common year for analysis. Cases

are removed from the dataset as outliers or contaminants following several rules detailed in White (2017).

Our approach to estimating average visitor spending is based on the principles detailed in Stynes and White (2006). Key among those principles is estimating average visitor spending within a mutually exclusive set of trip types. Visitors are first classified into three groups: 1) day trips to the local area, 2) overnight trips to the local area where the visitor stays on the national forest, and 3) overnight trips to the local area where the visitor stays off the national forest. Visitors in those three groups are then divided into "local" and "non-local" groupings based on whether the travel distance from home was more or less than 80 kilometers. Finally, a seventh group is formed comprised of all those visitors who reported their primary reason for initiating the trip was something other than visiting the national forest.

Results and Discussion

Pooling data across all NFS units, visitor spending in communities around national forests ranges from an average of $36 USD for those on short-distance day trips to an average of $580 USD for those traveling longer distances and staying overnight in the local area in commercial lodging. For those on day trips, fuel constitutes the greatest expense followed by food. For those on overnight trips, lodging expenses and food account for the greatest expenditures. In general, spending on entry fees, sporting goods, and souvenirs comprises a small component of overall trip spending. Those whose primary purpose for traveling away from home was something other than recreating on the national forest spend about $422 USD in communities around national forests. Because that spending is only indirectly related to the presence of the national forest, it is typically excluded entirely or partially from estimation of the economic activity resulting from NFS recreation.

The recreation activity of the visitor explains relatively little variation in visitor spending once trip type is taken into account (White and Stynes 2008). Within trip types, the spending of visitors engaged in specific activities is typically not statistically or practically different from the average spending computed for visitors engaged in all activities combined. Alpine skiing and snowboarding is an exception to this general pattern. Spending by visitors engaged in that activity is between 25% and 65% greater than that of visitors engaged in other activities.

There has been little change in average spending patterns of visitors to the NFS over recent years. Once corrected for inflation, spending average totals within trip types have remained generally stable between 2005 and 2016. Further, the patterns in spending across expenditure categories within individual trip types has remained generally consistent through time.

For estimating the economic contribution of NFS recreation use, total visitor spending is estimated by combining the average visitor spending figures with the NVUM visit estimate, an estimate of the shares of those visits that occur in each trip type, and the average number of people per party within each trip type. That total spending estimate is then applied as a final demand shock within an economic model to calculate the economic contribution of NFS recreation visitor spending.

Table 1—U.S. national forest visitor spending averages by trip-type segment and expenditure category, dollars per party per trip[a]

Spending	Nonlocal			Local			Non-	All
categories	Day	OVN-NF	OVN	Day	OVN-NF	OVN	primary	visits[b]
					USD			
Motel	0.00	44.77	203.85	0.00	6.39	51.62	139.67	53.96
Camping	0.00	27.79	13.68	0.00	28.25	23.01	12.23	7.43
Restaurant	14.77	27.47	116.41	5.66	7.65	32.43	93.23	37.63
Groceries	10.67	55.09	72.52	6.62	71.54	59.62	49.85	29.68
Fuel	30.20	62.27	82.47	15.43	46.59	58.05	62.71	38.74
Other transportation	0.58	1.34	4.98	0.16	0.04	1.19	3.35	1.45
Entry fees	4.12	7.13	12.85	2.70	4.51	5.12	7.58	5.38
Recreation and entertainment	2.96	7.36	33.31	1.01	2.01	3.61	21.84	9.38
Sporting goods	3.15	10.77	13.75	3.83	11.78	9.48	7.91	6.62
Souvenirs and other expenses	1.93	7.73	25.87	0.60	1.10	11.48	23.74	8.62
Total	**68.39**	**251.74**	**579.70**	**36.00**	**179.86**	**255.60**	**422.12**	**198.87**
Sample size (unweighted)	2,112	3,600	2,289	9,225	1,388	295	3,955	22,864
Standard deviation of total	72	399	714	53	199	325	653	n/a

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2014 dollars. These averages exclude visitors who claimed their primary activity was downhill skiing. OVN = overnight; OVN-NF = overnight visitors staying on the national forest.

[b] The all-visit averages are computed as a weighted average of the columns using the national trip segment shares for nondownhill skiing as weights.

References

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