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# Economic Development Report

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## WHEN NOTHING ELSE 'WILL DO': COLORADO FOURTEENERS AND THE EFFECT OF LIMITED SUBSTITUTES ON RECREATION ECONOMIC BENEFITS

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Many recreationists would agree that nothing can substitute for the majesty and beauty of reaching the top of high mountain summit. But when faced with \$4 a gallon gas would they stand by that statement? As part of our 2006-2007 economic research study on the value of Colorado Fourteeners, we estimated the value that recreators place on a unique mountain experience. We found that some forms of unique recreation, like a cog railway up Pikes Peak, have the potential to diminish the value derived from non-motorized means of recreation like hiking. We also found that many Fourteener recreationists have strong preferences for the mountain that they have "geared up" to visit. In essence, recreators appear to place a high value on the "uniqueness" of the recreation experience. Our studies show that this translates to a high dollar value, and it brings with it a variety of policy implications. This publication summarizes the most recent results of Colorado State University's Fourteener research project and the policy implications that result from many visitors unwillingness to substitute another Fourteener or lower elevation Thirteener.

### Study Overview

In 2006 and 2007, with the assistance of several non-profit mountaineering organizations, we distributed a total of 939 surveys to recreationists visiting a stratified sample of Fourteener peaks throughout Colorado.

In total 560 surveys have been returned, for a response rate of 60%. We used a "contingent valuation" methodology where we asked participants to report whether they would still visit their current Fourteener if the cost associated with the visit (gasoline, food, etc.) increased. We also asked participants whether they would substitute to another Fourteener or a Thirteener where the costs did not increase. What follows is a summary of two analyses that reflect the value that visitors place on recreation experiences that have few substitutes. Readers interested in additional results from the larger Fourteener study should consult the references presented at the end of the paper.

### Few Substitutes Mean High Values for Novel Means of Ascent

To evaluate the effect of limited substitute means of ascent on recreation values we surveyed Pikes Peak visitors. 206 mail back surveys were distributed to Pikes Peak hikers, drivers, and cog railway riders over five separate non-holiday weekends, once a month during late mornings, from July 2006 through November 2006. We summarize our benefit estimates in Table 1 in terms of "consumer surplus," or the net amount that Pikes Peak visitors would pay for their experience, *in addition to* what they have already paid. The hiker consumer surplus at \$31 per trip is about two-thirds that of automobile users (\$54), which is about half that

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**Table 1. Mean Consumer Surplus per Pikes Peak Trip with Confidence Intervals (CI's)**

| Activity          | Mean | Lower 90% CI | Upper 90% CI |
|-------------------|------|--------------|--------------|
| Hiking            | \$31 | \$26         | \$38         |
| Motorized Vehicle | \$54 | \$47         | \$63         |
| Cog Railway       | \$98 | \$77         | \$135        |

of cog railway riders (\$98). None of the 90% confidence intervals overlap, suggesting that the consumer surplus per trip is statistically different between activities.

To interpret the data, the rarest opportunity (cog railway) has a substantially higher consumer surplus per day trip, and thus a higher overall value to railway riders than the motorized vehicle and the hiking options. There is no other 14,000 foot peak in Colorado where one can take a novel conveyance like a cog railway to the top; clearly, the cog railway has a very large value to people riding it because there are no equivalent substitutes. In fact, the \$188 per day trip value is about seven times greater than the average sightseeing value in the intermountain western U.S. (Loomis, 2005). With respect to motorized vehicles, there is only one other 14,000 foot peak that can be driven, and that is Mount Evans, about 100 miles from Pikes Peak. Thus, the automobile users also have a relatively high value, due in part to limited equivalent substitutes. There are many substitutes for Pikes Peak for hikers, and these substitutes are without roads, automobiles and large groups of visitors at the top. These Pikes Peak hiking values are closer to the average value for hiking in general. In particular, the hiking values of \$31 per trip are similar to what is reported in the literature for hiking in the intermountain west (Loomis, 2005). The Pikes Peak value contrasts with an average value of \$300 per trip for hiking other Fourteeners that do not have motorized access to the summit (Keske and Loomis, 2007). In some respects, the presence of dozens of automobiles and hundreds of cog railway passengers at the summit transforms what might otherwise be a rather remarkable hiking experience (i.e., climbing a 14,000 foot peak), into just another hike.

**How Many Visitors will Substitute Other Fourteeners or Thirteeners?**

We estimated the value that recreators place on their hiking experience as a function of whether or not they were willing to substitute to another Fourteener or a Thirteener. Sixty percent of the respondents reported

that they would not be willing to substitute away from the mountain where they were contacted even if it means incurring higher costs. The other forty percent stated that they would be willing to substitute either another Fourteener or a Thirteener to avoid incurring higher costs. While both groups show a substantially higher consumer surplus for Fourteener recreation compared to other forms of mountain recreation, the group who will not substitute has more than triple the consumer surplus of group that would substitute. Results are shown in Table 2.

**Table 2. Mean consumer surplus per person per trip and 90% Confidence Intervals for Groups that Would and Would Not Substitute Away from their Current Fourteener**

| Group        | Substitute Group | No Substitute Group |
|--------------|------------------|---------------------|
| Mean         | \$88             | \$294               |
| Upper 90% CI | \$122            | \$397               |
| Lower 90% CI | \$67             | \$232               |

**Policy Implications**

Our results indicate that recreationists place a great deal of value on the uniqueness of a Fourteener recreation experience. In general, visitors put a great deal of value on Fourteener recreation compared to other mountain experiences; however, if in their minds there is limited substitution, the value substantially increases. Even the implementation of a hefty fee (\$70) would reduce Fourteener use of only 22%. In addition, although visitors may say that crowds may affect the quality of their Fourteener experience, statistically speaking, our data suggest the crowds may not deter Fourteener use. This high level of use may yield damage to the fragile alpine environment during periods of heavy use.

Our study yields several stewardship implications. First, we hope that quantifying the values placed on Fourteeners leads to increased budgeting and financial

support of stewardship efforts for both government agencies and non-profit stewardship groups. You can personally contribute to the environmental quality of high mountain peaks by staying on trail and avoiding the popular, crowded peaks during high use times like the weekend and holidays.

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