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ISSUE BRIEF

THE ECONOMIC COSTS OF WILDERNESS

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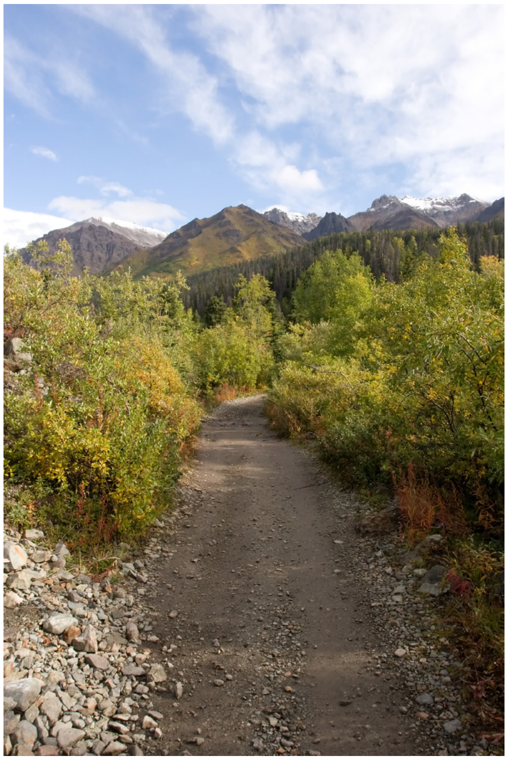
Summary

Wilderness is one of the most contentious issues in American public lands management. Local officials often bemoan Wilderness designations as creating economic hardships by limiting extractive industries, outdoor recreation, and the siting of transportation corridors, water and power lines, and telecommunication facilities. In direct contrast, many environmentalists allege that Wilderness creates economic benefits for local communities through increasing property values and from benefitting the tourism industry. This study explores the economic claims by examining empirical evidence of identifiable differences in the economic conditions of Wilderness and Non-Wilderness Counties.

Some Wilderness can have positive economic impacts but our findings indicate that this is not the general rule. We find that when controlling for other types of federally held land and additional factors impacting economic conditions, federally designated Wilderness negatively impacts local economic conditions. Specifically, we find a significant negative relationship between the presence of Wilderness and county total payroll, county tax receipts, and county average household income. By working together with local communities to address their concerns, environmentalists can help develop balanced policy that genuinely acknowledges the local economic costs associated with Wilderness.



Introduction to Wilderness

Wilderness, so designated pursuant to the Wilderness Act of 1964, is the most restrictive of all federal land-use designations. The Wilderness Act protects areas “untrammeled by man” that have not been developed for other human uses. To preserve wild characteristics, the Wilderness designation prohibits roads, road construction, mechanized travel, and the use of mechanized equipment. Wilderness also impacts extractive industries such as mining, logging, and grazing.[1] The stringent requirements of the Wilderness Act also disallow the construction of telecommunication towers, facilities for power generation, transmission lines, and energy pipelines.

Due to these restrictions, local officials frequently complain that Wilderness harms local economies by limiting the opportunities for economic development. The State of Utah, for instance, recently passed House Joint Resolution 10 which requested that the U.S. Congress not designate any additional Wilderness in Utah. Through a vote by a supermajority of members, the state legislature asserted that Wilderness' limitation of multiple uses causes substantial economic hardship for the state.

Environmentalists counter that the presence of Wilderness actually attracts residents and businesses to nearby communities. Wilderness is claimed to increase property values and create a higher quality of life in those communities. Environmentalists also claim that Wilderness contributes to a healthy tourism industry. The Wilderness Society notes "[d]esignated wilderness areas on public lands generate a range of economic benefits for individuals, communities, and the nation—among them, the attraction and retention of residents and businesses."[2] The Sonoran Institute similarly finds, "protected natural places are vital economic assets for those local economies in the West that are prospering the most."[3] The Sonoran Institute further notes, "Wilderness, National Parks, National Monuments, and other protected public lands, set aside for their wild land characteristics, can and do play an important role in stimulating economic growth—and the more protected, the better."[4]

Despite these differing views, Congress has continued creating Wilderness Areas. There are 759 Wilderness Areas currently in the United States, totaling 109,663,992 Acres (Gorte 2010). Wilderness is managed by four federal agencies: the National Forest Service, the National Park Service, the Fish and Wildlife Service, and the Bureau of Land Management. Wilderness Areas dramatically vary in size from the Pelican Island Wilderness in Florida, which occupies a mere six acres, to the 9,078,675-acre Wrangle Island Wilderness in Alaska. Due to the stringent requirements laying out Wilderness characteristics, the majority of Wilderness Areas are found within largely rural and lightly populated counties within Alaska, California, Colorado, Montana, New Mexico, Nevada, Oregon, Utah, and Washington. Only six states contain no Wilderness: Connecticut, Delaware, Iowa, Kansas, Maryland, and Rhode Island.

Understanding the Economic Impact of Wilderness

To provide better evidence of economic impacts, we use longitudinal statistical analysis over every county in the United States dating back to 1995. The panels each contain measurements of economic conditions taken every five years.[5] We selected three uniformly applicable variables as proxies for county economic conditions: average household income, total payroll, and total tax receipts. Average household income and total tax receipts are gathered by the U.S. Census Bureau. Total payroll figures are gathered by the Bureau of Labor Statistics.

Average household income is calculated by dividing the sum of all income of the residents over the age of 18 in each household by number of households. Average household income has the advantage of specifically addressing how individual households are on average affected by Wilderness designation in these counties. It has the disadvantage of being self-reported to the U.S. Census Bureau and, accordingly, may not be as valid as more direct measures.

Total payroll is a broader metric that captures those under the age of 18 and commuters who may live outside but work within a county. Further, it is a measure of the economic situation of individuals rather than households. Total payroll is not a perfect proxy because it does not capture the capital investment, county residents who work outside the county, or most importantly, retirees who do not receive payroll. Nevertheless, the data are readily available and considered a reliable metric for local economic conditions.

County tax receipts present two advantages over the others measures.[6] First, the data are largely complete; local governments are required by state and federal statute to report tax receipts correctly. These requirements provide some confidence in the data that self-reporting does not provide. Second, tax receipts represent all taxable transactions in the county. This provides a useful metric of economic activity. Tax receipts, however, are not a perfect proxy as there are significant institutional differences across states, regions, and often counties themselves about how, when, and why taxes may be collected.

Although none of our dependent variables is a perfect proxy for economic conditions, taken together, they paint a relatively complete picture of the economic situation. We expect that the presence of Wilderness would have similar effects on each variable.[7] To ensure that it is the effect of Wilderness and not simply federal land ownership that harms economic conditions we include control variables for each of the federal agencies that manage public land. We also include variables that control for the significant differences among counties. These variables include population, land area, and number of households, birth rate and school enrollment, and infant death rate. Further, we include variables indicated by the economic development literature as likely important in determining outcomes: high school graduates, median household income, poverty rate, crime rate, government employment, unemployment rate, social security recipients.

Findings

Controlling for other factors influencing county economic conditions, the Wilderness designation is significantly associated with lower per capita income, lower total payroll, and lower total tax receipts in counties. The estimated impact of Wilderness on county economies is detailed in Table 1 below. Full results of the regression analysis from the three models are contained in Appendix 1.

Table 1: The Economic Impact of Wilderness

Measure of Economic Condition	Economic Impact
Average Household Income	$-1446.06
Total Payroll	$-37,500.00
County Tax Receipts	$-92,910.00

These results indicate that Wilderness impacts both households and counties. Average household income within Wilderness Counties is estimated to be $1,446.06 less than Non-Wilderness Counties. Total payroll in Wilderness Counties is also estimated to be $37,500 less than in Non-Wilderness Counties. County Tax Receipts in Wilderness Counties is estimated to be $92,910 dollars less than in Non-Wilderness Counties.

Analysis and Conclusions

The argument often stated by the environmental community that Wilderness is good for local economies is simply not supported by the data. When comparing Wilderness and Non-Wilderness Counties, Wilderness Counties are at an economic disadvantage to their Non-Wilderness counterparts. Accordingly, if the test for whether or not to designate Wilderness is economic, Wilderness fails. But economics did not underlie the Wilderness Act or any of the Wilderness Areas established since the Act was passed. Wilderness is established for emotional, ecological, and cultural purposes. Our results show that those purposes are accomplished at a cost to local economies.

A variety of factors could lead to the negative relationship between Wilderness and economic conditions. Arguably, areas “untrammeled by man” have less existing economic activity and reducing the potential for future economic development by designating those areas as Wilderness will not, on net, be economically positive. It is also possible that different types of Wilderness may have different implications for economic conditions. As noted, four federal agencies currently manage Wilderness Areas, and different agencies may have different economic impacts on counties. Wilderness within National Parks, for instance, may more effectively attract tourists than Wilderness on Bureau of Land Management or National Forest Service lands.

Finally, it is probable that the location of Wilderness has an impact on the direction and magnitude of its economic impact. Phillips (2004), for instance, found that Wilderness designation in the Green Mountains of Vermont had a positive impact on private land values in that area of Vermont. We should assume that some Wilderness can, in fact, have positive economic impacts, even though our findings indicate that this is not the general rule.

While there may be other legitimate, non-economic reasons for the designation of Wilderness, the tradeoff will likely impose an economic burden on local families and businesses. The benefits and costs from Wilderness are unevenly distributed between local and non-local communities, with local communities incurring a larger burden of the costs. This provides a good reason why local officials often rally against and adamantly oppose Wilderness.

When environmentalists and national agencies consider the creation of Wilderness designations in the future, they should pay attention to the interests of local communities. This paper illustrates the adverse economic costs of Wilderness on local economies. By working together with local communities to address their concerns, environmentalists can help develop balanced policy that genuinely acknowledges the local economic costs associated with Wilderness.

Appendix 1: Regression Results Table

	Model 1 Household Income	Model 2 Total Tax Receipts	Model 3 Total Payroll
Observations	7185	7185	7164
Wald Chi-Square	1.28e+06***	21209.98***	48232.88***
Variables			
Wilderness	-1446.06***	-.37.50**	-92.91*
Percent BLM Land	-3.087	.58	-1.66
Percent Bureau of Reclamation Land	40.97	-2.66	3.84
Percent Department of Defense Land	-148.45***	-3.87***	-21.38**
Percent Forest Service Land	-10.78*	.10	-.06
Percent Fish and Wildlife Land	29.25	1.23	-3.50
Percent National Park Land	-4.24	2.55*	-7.60*
Percent Other Federal Land	.99	2.47	8.96
Percent Tribal Land	16.29	.26	-2.78
Percent Tennessee Valley Authority Land	55.40	-1.50	6.63
Population	.40***	-.002***	.01***
Land Area	-.15***	-.002	-.03***
Percent Male	-.040***	.007***	.006***
Percent White	-3.89	-2.00***	-.82
Birth Rate	-406.41***	-7.94***	7.3
Infant Death Rate	4.05	.05	1.66
School Enrollment	-.14***	.013***	-.007***
High School Graduation Rate	58.17***	1.41**	-.38
Poverty Rate	75.59***	-5.11**	6.83**
Crime Rate	.88***	-.006**	.02**
Unemployment Rate	-.51***	.003	.01**
Median Household Income	.	-.009***	.01**
Constant	-127.37	491.06***	-1100.01***

*P=.10 **P=.05 ***P=.01

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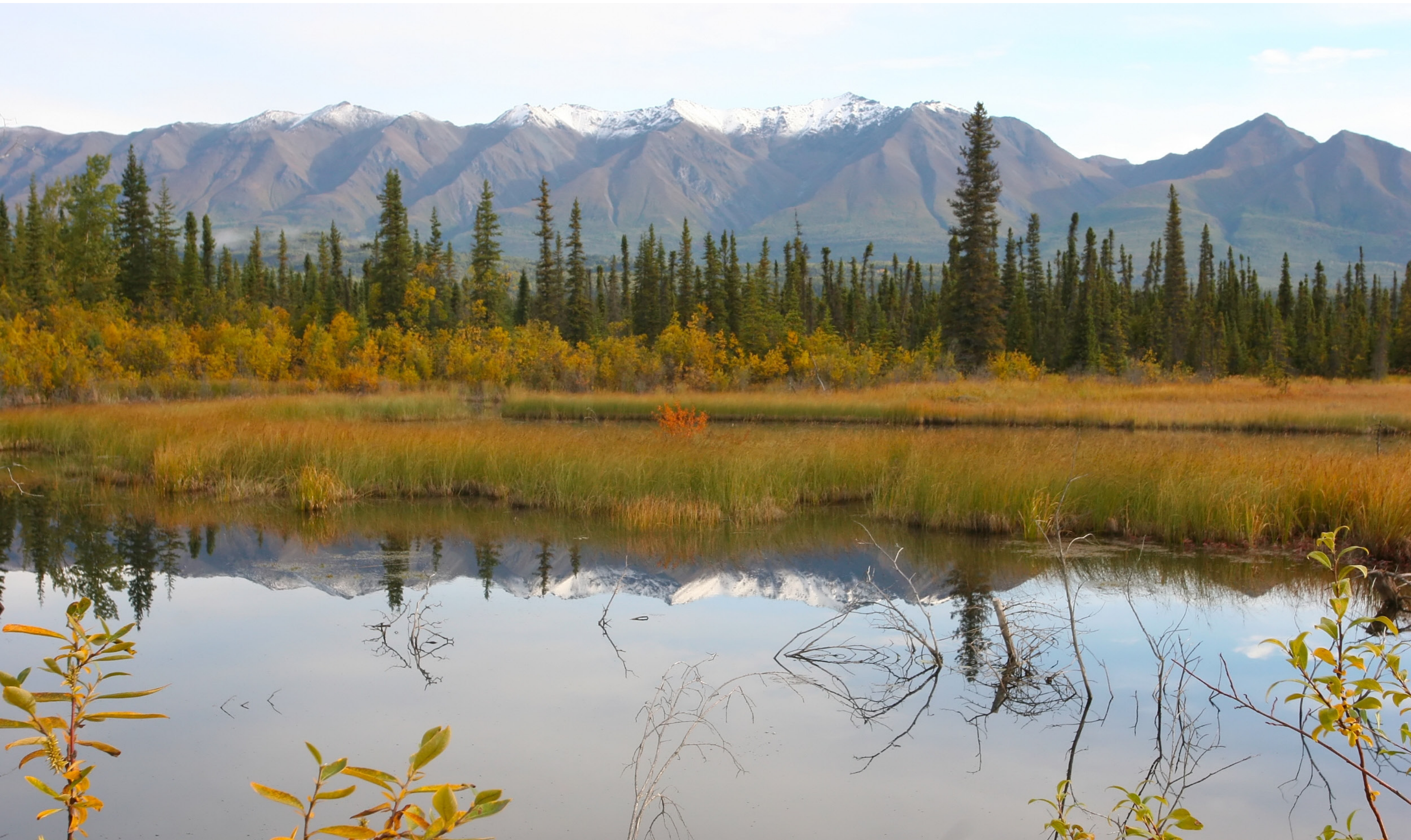

ENDNOTES

1 Although mining claims were allowed for the first 20 years after the Wilderness Act passed, mining and mineral exploration are now prohibited within Wilderness. Although logging is not expressly proscribed by statutory language of the Act, the restrictions on mechanized travel, mechanized equipment, and road construction generally preclude large-scale logging activity (Coggins 1993). Grazing is expressly allowed in Wilderness Areas, but administrators may make "reasonable regulations" including the reduction of grazing to improve range conditions (see generally H.R. 96-617). In addition to the prohibitory language found in the Wilderness Act, courts have aggressively blocked a variety of activities in Wilderness and areas adjacent to Wilderness. Uses of land surrounding Wilderness often receive more stringent review. The 10th Circuit Court of Appeals, for instance, in 1972 upheld an injunction of logging in an area that approached a Wilderness Area (*Parker v. United States* 448 F.2d 793 cert. denied 405 U.S. 989). Wilderness Areas also often raise review standards under the National Environmental Policy Act (NEPA). Under NEPA, land uses near Wilderness Areas may be found to have a more "significant" impact than actions near lands not under federal protection. This may increase the costs associated with county or state activities occurring near Wilderness areas and may change the cost calculus in making governance decisions.

2 The Wilderness Society, "The Economic Benefits of Wilderness: Focus on Property Value Enhancement," *Wilderness Society Science and Policy Brief*, no. 2, March 2004, p. 1.

3 R. Rasker, B. Alexander, J. van den Noort, and R. Carter, *Prosperity in the 21st Century West: The Role of Protected Lands*, The Sonoran Institute, 2004, p. ii.

4 Ibid., p. 1. It is interesting to note that these types of studies almost never account for the opportunity costs of Wilderness Designations. They evaluate the potential benefits of Wilderness without accounting for the lost uses of the land including the value of timber, minerals, and recreation use that are lost because of the Wilderness designation.

5 By including evidence over time, we hope to minimize any temporal effects such as changes in the short run versus changes in the long run. Using all counties expands the scope of investigation and enables an examination of whether there are economic differences between Wilderness and Non-Wilderness Counties, while avoiding regional economic phenomena that may be present in individual geographic locations. The Western United States, for instance, has been undergoing a demographic transformation with significant population and land-use transformations throughout the past two decades. By examining all of the United States, we hope to avoid those Western-specific phenomena.

6 It could be argued that counties with large amounts of federally held land will have lower tax receipts and appear negatively impacted in terms of tax receipts. Although left alone, this may downwardly bias the results. We have mitigated these outcomes by including other variables within the model such as county size, county population, and percentage of county held by different governmental agencies. By including these variables, the impact of variable county size and variable ownership should be mitigated within the regression coefficients of these variables and should not downwardly bias the wilderness coefficient.

7 We use a dummy variable to indicate the presence or absence of Wilderness in each county across time. The Dummy is coded 1 for the presence of Wilderness within a county and 0 when a county contains no Wilderness.