

USING THE DISTRIBUTION OF CONSUMER SURPLUS TO MEASURE EQUITY IN
RECREATION: FIVE EXAMPLES IN FLORIDA.

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Abstract--A review of several recent studies of recreational value (consumer surplus) and economic expenditures generated by resource-based recreational activities shows disproportionately low participation rates by minorities for many of these activities. For example, in Florida, demographic minorities (e.g., African-American, Hispanic and Asian) seldom participate in activities such as beach visits, biking, boating and hunting. Using estimates of value generated to the majority market segment (European-Americans) and assuming comparable participation rates, it becomes possible to estimate the potential economic impact of directed marketing efforts toward minority segments.

INTRODUCTION

Public agencies charged with managing natural resources for recreational activities are required to be responsive to the public by providing recreational opportunities for all. For many agencies such as the U.S. Forest Service, U.S. Park Service and many state wildlife and park agencies, this has meant providing a variety of recreational facilities for the public at-large. These often include things such as campgrounds, picnic areas, beach access/frontage, boat ramps, piers etc.; most anything that complements the native natural resource.

Yet, simply providing facilities for the public may not be enough. These agencies must also be sensitive to the wide variety in public opinions and make an effort to accommodate their multiplicity of preferences. For example, if efforts by the U.S. Forest Service were to focus exclusively on camping to the exclusion of other opportunities, unless camping is enjoyed broadly by society, the agency may fail to equitably address the desires of other societal segments.

Improving participation among under-represented groups should not be simply a question of equity but also a degree of efficiency. The possibility exists of generating additional value to the public (classically termed consumer surplus in economics texts) by more effectively employing an under-utilized resource. The better marginal use of these public resources may pay large dividends to society. If a particular market segment is not utilizing a public good because of poor information, large transactions costs or other barriers, there should be no appreciable cost burden to existing users caused by adding new and differently valued uses. The exceptions to this are congestible goods, where additional use can add a burden to all current users. However, before overcrowding becomes an issue, additional public use of these resources should not be viewed as a zero sum game until the point where congestion (overcrowding) is realized. Previously, the restricted use of certain public resources may have result in a limited choice of activities. For example, tradition or historic precedent may deter "non-traditional" forms of recreation from being added to the array of "traditional" campground activities.

Reviewing the results of several recent recreational studies in Florida, it is possible to determine if a select group of traditional forms of recreational activity enjoy a wide degree of support across racial and ethnic segments. If some forms of these traditional forms of recreation have a strong, but narrow, degree of support, public agencies may want to consider how to increase market share among these under-represented groups.

STUDY OBJECTIVES AND METHODOLOGY

Using recent demographic data from four recreational surveys in Florida, this study will determine if minorities participate in significantly lower proportions than their composition in the local communities for several traditional resource-based recreational activities. When this condition exists, an estimate of potential value (consumer surplus) will be made by projecting on minorities, visitation rates comparable to the majority users, and calculating the potential consumer surplus by using generic estimates for the value of these recreational activities.

To document the phenomena of disproportional use and potential consumer surplus, four recent studies (within the past six years) of recreational activities will be reviewed. These studies include a wide variety of outdoor natural resource based recreational activities including pier use (fishing and sight seeing), boating, saltwater beach use and biking/skating.

For each case, the actual participation rates are compared to the study area's demographic composition to determine the level of under representation, if any. The estimate of potential visits is then calculated by assuming the under-represented group could participate at the same level as the principal group. This potential rate is then multiplied by the minority's demographic composition in the region or state, and the total number of visits for the activity in question to produce the potential number of visits. Visits are either taken directly from the case study or gleaned from the Florida Statewide Comprehensive Outdoor Recreation Plan (SCORP) (Florida Department of Environmental Protection 1994). To estimate the potential consumer surplus or value, the potential visits are multiplied by an estimate of the per user benefit for activity participants as reported by Rosenberger and Loomis (2001).

RESULTS

Case 1: Florida Pier Use (Fishing and related activities)

The first case is based on the results of a statewide survey of public pier users in Florida (Thomas and Stratis 2001). Conducted in 2000 by the Florida Fish and Wildlife Conservation Commission, this study was an effort to document the economic impact of expenditures related to the use of public piers and boat ramps. The survey considered questions such as primary activity while visiting the pier, reasons for the visit, ideal features desired by the visitor and their basic demographics, including gender and race. Table 1 shows the participation rates by race and ethnicity compared to their statewide composition based upon the 2000 U.S. census.

Note that white non-Hispanics and blacks participate at higher rates than their demographic composition (72.5% vs. 65% and 20.1% vs. 14.6%, respectively) and that other race/ethnicity groups participate at lower rates. The participation rates and demographic proportions are all significantly different at the 95% level or better. Using the SCORP visitation data and Rosenberger and Loomis (2001) estimates of activity value (\$31.88 value per trip), the potential statewide annual gain for the under-represented groups of Hispanics and Asians is in excess of \$10 million and \$2 million, respectively. Please refer to Table 1.

Case 2: Tallahassee, Florida Biking and Skating Trail

A study by Lorenzo (2002) in Tallahassee, Florida to determine attitudes and demands for a rail-to-trail park revealed a slightly different outcome. During his survey of 209 users of the St. Marks Bike Trail during the summer of 2002, he found white non-Hispanics comprise a disproportionately large part of the users with all minorities underrepresented. Table 2 displays the biking and skating participation

rates by race and ethnicity compared to their Leon County composition based upon the 2000 U.S. census.

White non-Hispanics, Asians and other minority groups participate at higher rates than their demographic composition in the Tallahassee and Leon County area (82.1% vs. 66.4%, 2.5% vs. 1.9% and 6.2% vs. 1.5%, respectively) and that Hispanics and blacks participate at rates lower than their composition proportions. All participation rates differ significantly from their demographic representation at the 90% level or better.

Combining the SCORP statewide visit data and the Rosenberger and Loomis (2001) estimates of value derived from biking (\$10.51 value per trip), the potential economic value for under-represented groups in Florida is in excess of \$130 million statewide, annually. Please see Table 2.

Case 3. Brevard County, Florida Boating Study (fishing excluded). During the spring of 2001, Thomas (2001) conducted a survey of 636 people who recreationally engage in boating activities. The participants were divided into groups that primarily fished while in their boat (fishing-from-boat), and those who simply boated (recreational boating). White non-Hispanics and Asians recreationally boated in disproportionately larger proportions than their county-wide makeup (92.8% vs. 83.7% and 2.3% vs. 1.5%, respectively), with blacks, Hispanics and other minorities underrepresented in the activity. Table 3 presents the recreational boating participation rates by race and ethnicity compared to their Brevard County composition based upon the 2000 U.S. census. All participation rates differ significantly from their county level demographic representation at the 95% level or better.

Turning to the SCORP report for statewide visit data and the Rosenberger and Loomis (2001) estimates of value for boating (\$24.82 value per trip), the potential value summed across minorities is nearly \$5 million annually. Please refer to Table 3.

Case 4. Brevard County, Florida Boating Study (fishing only). Turning next to those Brevard County boating participants primarily fishing from their boat, Thomas (2001) found that white non-Hispanics and Asians participated disproportionately more often than their county-wide makeup (92.8% vs. 83.7% and 2.3% vs. 1.5%, respectively), with blacks, Hispanics and other minorities underrepresented in the activity. Table 4 presents the fishing-from-boat participation rates by race and ethnicity compared to their Brevard County composition based upon the 2000 U.S. census. All participation rates differ significantly from their demographic representation at the 95% level or better.

Combining the SCORP report for statewide visit data and the Rosenberger and Loomis (2001) estimates of value derived from recreational saltwater fishing (\$31.88 value per trip), the potential value to underrepresented groups is approximately \$20 million per year. Please see Table 4.

Case 5: Beach Use in Florida.

In 1994, Tomasi and Thomas (1997) conducted a statewide telephone survey of 2,020 people who had visited a Florida beach over the past 12 months. They found that white non-Hispanics use the beach in disproportionately larger numbers than their statewide makeup, with blacks, Hispanics, Asians and other minorities underrepresented in the activity (85.6% vs. 65%, 4.2% vs. 16.8%, 8.1% vs. 14.6% and 0.9% vs. 2.7% for white non-Hispanic, Hispanic, black and Asian, respectively). Table 5 presents the beach participation rates by race and ethnicity compared to their statewide composition based upon the 2000 U.S. census. All race and ethnicity groups participate at rates significantly different than their proportions in Florida at the 95% level or better.

Using the SCORP report for statewide visit-occasion data and the Rosenberger and Loomis (2001) estimates of value derived from recreational saltwater beach visits (\$30.00 value per trip), the cumulative potential gain in total value to underrepresented minorities is nearly \$200 million annually. Please refer to Table 5.

DISCUSSION AND CONCLUSION

There is the potential for substantial economic return from improved marketing to underrepresented groups. Looking at only five select "traditional" forms of natural resource dependent recreational activities, there is at least \$300 million in lost potential value. Additionally, this is an annual loss and only represents a few forms of recreation in Florida.

The five cases presented demonstrate a wide variation in the use of natural resource based services by race and ethnicity. While some may argue this validates a form of de facto discrimination, another, market/economic based and proactive viewpoint would consider this information as motivation for better marketing and preference research. Essentially there are two approaches policy makers may take to improve conditions for these underrepresented groups: improve the marketing of existing recreational services and/or discover and invest in new recreational services.

Better promotion of existing services would mean reaching and educating under-represented groups as to the current forms of recreation and the potential benefits they provide users. For example, one approach might be a campaign promoting beach related activities via minority targeted media. If the preferences of minorities are similar to those of the majority, a targeted effort will likely be successful. However, if minority preferences are significantly different or if they face significant financial or social constraints limiting their access, these efforts will likely fail.

An alternative approach would involve learning more about minority preferences for resource based recreational services. This may involve extensive marketing research and gaining a more thorough understanding of alternative recreational activities. Using a traditional activity as an example, when considering African-Americans, there is ample evidence that fishing is a highly desired activity involving natural resources. Policy makers may want to take this into consideration when allocating funds between boat ramp and pier construction. If a policy maker desires to redirect funds that were originally designated for, say boating, to this underrepresented group, they may want to select facilities that permit improved fishing from the shore at the expense of more boat ramps.

To acquire these potential benefits for an economy, a better understanding of minority tastes and preferences is essential and may return large benefits to both the minority segments and the economy as a whole. Assuming that public managers of natural resources are to serve the entire market, it becomes increasingly important to first recognize these large discrepancies in market participation and second to close the gap, generating increased economic value and efficiency. To better gauge the gambit of potentially new activities and/or how an agency might reach minority market segments, it is reasonable to increase the involvement of the same minorities within agencies responsible for providing resource-based activities.

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Table 1. Participation rates, value and potential economic gains by race and ethnicity for pier use in Florida.

Race/Eth	Census Prop.	Part. Rate	Two Std. Errors		Visits	Value (\$)	Potential Gain in Value (\$)
			of Mean	of Mean			
White (non-Hsp)	.650	.725	.0137		1,918,592	61,164,702	na
Hispanic	.168	.044	.0028		116,439	3,712,065	10,461,000
Black	.146	.201	.0111		531,913	16,957,386	na
Asian	.027	.002	.0011		5,293	168,730	2,109,128
Other	.009	.002	.0011		5,293	168,730	590,000

Table 2. Participation rates, value and potential economic gains by race and ethnicity for bicycling and skating in Florida.

Race/Eth	Census Prop.	Part. Rate	Two Std. Errors		Visits	Value (\$)	Potential Gain in Value (\$)
			of Mean				
White (non-Hsp)	.664	.821	.0200		43,486,000	457,045,000	na
Hispanic	.035	.012	.0016		635,000	6,680,000	12,803,000
Black	.291	.080	.0102		4,237,000	44,535,000	117,462,366
Asian	.019	.025	.0034		1,324,000	13,917,000	na
Other	.015	.062	.0041		3,284,000	34,515,000	na

Table 3. Participation rates, value and potential economic gains by race and ethnicity for recreational boating in Florida.

Race/Eth	Two Std.			Visits	Value (\$)	Potential Gain in Value (\$)
	Census Prop.	Part. Rate	Errors of Mean			
White (non-Hsp)	.837	.928	.0054	1,781,000	44,207,000	na
Hispanic	.046	.003	.00002	5,000	142,000	2,048,000
Black	.084	.031	.0024	59,000	1,476,000	2,524,000
Asian	.015	.023	.0068	44,000	1,095,000	na
Other	.018	.015	.0011	28,000	714,000	143,000

Table 4. Participation rates, value and potential economic gains by race and ethnicity for recreational fishing-from-boats in Florida.

Race/Eth	Two Std.			Visits	Value (\$)	Potential Gain in Value (\$)
	Census Prop.	Part. Rate	Errors of Mean			
White (non-Hsp)	.837	.928	.0054	6,085,000	194,016,000	na
Hispanic	.046	.003	.00002	19,000	627,000	8,989,000
Black	.084	.031	.0024	203,000	6,481,000	11,080,000
Asian	.015	.023	.0068	150,000	4,808,000	na
Other	.018	.015	.0011	98,000	3,136,000	627,000

Table 5. Participation rates, value and potential economic gains by race and ethnicity for recreational saltwater beach use in Florida.

Race/Eth	Two Std.			Visits	Value (\$)	Potential Gain in Value (\$)
	Census Prop.	Part. Rate	Errors of Mean			
White (non-Hsp)	.650	.856	.0051	26,118,000	783,540,000	na
Hispanic	.168	.042	.0022	1,281,000	38,430,000	115,323,000
Black	.146	.081	.0031	2,471,000	74,130,000	59,496,000
Asian	.027	.009	.0004	274,000	8,220,000	16,476,000
Other	.009	.003	.0001	91,500	2,730,000	5,492,000